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THE GROOVES OF CHANCE by CHARLES SHEFFIELD

February

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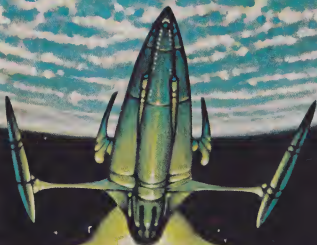
JOURNEY'S END • A. BERTRAM CHANDLER

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SOCIAL DESIGN IN SCIENCE FICTION

BRIAN M. STABLEFORD

IN AN ESSAY called "The Two Sociologies" Alan Dawe makes the following observation:

"There are . . . two sociologies: a sociology of social system and a sociology of social action. They are grounded in diametrically opposed concerns with two central problems, those of order and control. At every level they are in conflict. They posit antithetical views of human nature, of society and of the relationship between the social and the individual. The first asserts the paramount necessity, for social and individual well-being, of external constraint. . . . The key notion of the second is that of autonomous man, able to realise his full potential and to create a truly human social order only when free from external constraint." (1)

Whether there are, in fact, two sociologies so diametrically opposed to one another remains arguable in academic circles. There is no doubt, however, that we can use this idea in order to define two very different strategies applicable to the building of literary models of society. An important distinction can be made between literary models of social system, on the one hand, and literary models of social situation, social action and social environment on the other.

The two types of model demand quite different narrative strategies. A literary account of social system demands an *objective* viewpoint of some

kind. The society must be described in detail by an observer who is in a position to take a broad and collective view of the function of social institutions and the relationships between entire spheres of social philosophy. Thus, in the classic Utopian novel we have a traveller who discovers an island, is given a full account of its society by high-standing citizens, and who later re-assembles all that he has been told, together with his own observations, so that he can offer his account to his own people (e.g. Thomas More's *Ralph Hythloday* and Tommaso Campanella's *Geonoesse* sea-captain, in *Utopia* and *The City of the Sun* respectively).

At the opposite end of the scale, we find that the novel concerned solely with social action and social situation demands an entirely *subjective* viewpoint. The protagonist cannot be an outsider—he must be a member of the society being modelled, active only within its specialised social environment, possessed of no other set of social assumptions than are permitted him *by* that social environment. Such literary studies of social environment are almost invariably studies of *actual* society (which does not make them any the less models) and Sartre's *Nausea* can be seen as an archetype in polar opposition to *Utopia*.

Within the context of imaginative literature the model of social system has a far longer history than the

model of social situation. The narrative strategy of the Utopian novel has remained invariant throughout the centuries, from *Utopia* itself to such twentieth century examples as Hilton's *Lost Horizon* (1933) and Huxley's *Island* (1962). The Utopian format, however, became less and less common as increasing knowledge of the globe depleted the supply of distant and unknown lands. By the nineteenth century it was becoming increasingly common for social models to be displaced in time rather than in space. This posed difficulties for the writer, not only in taking his observer into the hypothetical society, but—more acutely—in bringing him back to deliver his account. The “dream” format became the most convenient—this was used in straightforward fashion by William Morris in *News From Nowhere* (1890) and covertly by Edward Bellamy in *Looking Backward* (1887).

This development may be expressed as a partial replacement of “eutopian” models by “euchronian” ones. (“Eutopian” comes from the Greek, meaning “a better place”, “euchronian” likewise, meaning “a better time”. More’s “Utopia” is deliberately ambiguous—suggesting both “a better place” and “no place”—“outopia”.)

The difference between eutopian and euchronian strategies, however, is rather more significant than a change of location. There is an empirical change in philosophy. The Eutopian novel can only set a standard for comparison—its message is: “Here are people who live better lives than we do. We should try to be more like them.” The euchronian novel, however, goes further than that—it says: “This is what the world *will* be like, if we care to make it so.” The concept

of social action is invading the model of social system. Furthermore, it is but a short step from the euchronian message to its cautionary corollary: “This is what the world will be like, if we *don't* do something about it.” Except for a few isolated and trivial examples, the novel showing an undesirable social model did not emerge until after the shift in emphasis to temporal rather than spatial displacement (the term “dystopian” is, in fact, a bad one—novels like *Brave New World* and *1984* are the negative equivalents of euchronian strategy, *not* eutopian).

The eutopian novel is an implicitly political document, but all it does is to paint a different picture. The euchronian novel implicitly assumes *change* from one state to the other. Some euchronians (e.g. Bellamy) did not trouble themselves to connect past and future historically, but others (e.g. Morris) felt it obligatory to provide a historical map of the route which society must take in order to arrive at the desired destination. The “complete” euchronian novel tracks changes in social system *as they are brought about by social action*. Not long after Bellamy and Morris we find a significant number of writers looking forward into the social situation of the future, and envisioning the social action which they consider appropriate to that situation. Major works of this kind include Jack London's novel *The Iron Heel* (1907) and the remarkable *We* by Yevgeny Zamyatin (1924).

These novels use *participant* observers rather than objective ones, and participant observers who are usually *active* in attempting to influence the dynamics of the social situation.

In this era, the idea of science fiction was “invented” by Hugo Gernsback. He put forward a mani-

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THE GROOVES OF CHANGE

CHARLES SHEFFIELD

Charles Sheffield's "Sight of Proteus" (May, 1978) introduced Behrooz Wolf, from the Office of Form Control, and a world of the future in which humans can readily change their forms. In the earlier-published story, "Legacy" (which appeared in the June, 1977 issue of Galaxy), Wolf's adventures continued, leading him inevitably to the following story. For those who have not read "Legacy," the author has provided a brief synopsis of its relevant action in his "Prolog". . . .

Illustrated by Steve Fabian

Prolog.

BY THE END of the twenty-second century, biological form-change techniques have produced great changes in the inhabitants of Earth, but they have done nothing to ease the population problem. With fourteen billion people living on Earth, widespread economic instability is always a danger. Earth's expert on the subject, Laszlo Dolmetsch, considers that disaster is imminent unless a general theory of stabilization can be developed.

Behrooz Wolf, in his job as head of the Office of Form Control, has the task of detecting and suppressing illegal form-change experiments in this world. Earlier stories of the series, appearing recently in *AMAZING* and in *Galaxy*, told how Wolf uncovers a series of experiments in which the respected director of Central Hospital, Robert Capman, made use of human children in his illegal programs. Wolf finds evidence of four series of proj-

ects, named by Capman as Proteus, Timeset, Lungfish and Amphibaena. Before the latter can be captured, however, he flees and cannot be found anywhere on Earth.

Four years later, the appearance of strange new forms leads Wolf to seek assistance from Capman, who returns to Earth in the form-changed person of Karl Ling, assistant to the United Space Federation Cabinet. Capman/Ling discovers that the strange forms are the result of a viral infection of the human central nervous system, which couples with purposive form-change to produce the new shapes. The viral material that causes this is found on long-period comets that once formed parts of Loge, an inhabited planet that existed long ago in an orbit between Mars and Jupiter.

Capman's findings come too late to save Wolf's assistant, John Larsen, who conducts a misguided experiment with the viral material, assisted by USF man Park Green. Larsen changes to the Logian form, while still retain-



ing his human memories . . .

*"Let the Great World spin forever,
down the ringing grooves of change."*

—Tennyson.

Chapter One

THE **EXTERNAL**
LIGHTS had dimmed to their late-night glow. Wolf was sitting by the great tank, half-asleep, musing over the social indicators. His weariness showed in the stiff shoulders, the bowed head and slack posture. In front of him, the screen display of the global map revealed concentric circles of change, spreading out from the Link entry points. He could visualize the frantic activity in the General Coordinators' offices, as they sought to stabilize Earth's economic system. Even the long-term indicators—fertility, births, deaths and change-rates—would soon be affected unless the new controls produced better results.

"Sorry to be so 'ong, Bey." The sibilant words from the wall speakers broke suddenly into his drifting thoughts. "The BEC people wanted to test more of my visual responses. Apparently I can see everything from near ultra-violet out through the thermal infra-red. Roughly three-tenths of a micron out to fifteen microns. No wonder I've noticed the world is looking strange these days."

Wolf shook his head, took a deep breath, and sat up straighter in his chair. He turned to look into the tank through its transparent side panels. Inside, John Larsen raised a massive, triple-jointed arm and gestured in greeting. His torso was massive, wrinkled and umbonated, with a smooth, oval area immediately above the central boss that housed the sec-

ondary motor nerve center. The broad skull was dominated by the great, jewelled eyes and the wide fringed mouth beneath it. Larsen moved his head forward, in the movement that Bey had come to recognize as the Logian smile.

"We had a 'long session," he said, "but at least the doctors seem to think I've kept my sanity through a' this—yesterday they didn't sound too sure of that."

As he spoke, forming the words slowly and carefully, the smooth oval area on his chest modulated in color, from a uniform pale pink, to brown, to soft green, following his words like a sound-sensitive visual display.

Wolf smiled wearily. "That's an improvement, then—you never showed much sign of sanity before the change. Ultra-violet through thermal infra-red, eh? More than five octaves on the electromagnetic spectrum, and we see less than one. Can you cover all that range on the chest display?"

"Sure I can. Watch this. Thermal first, then I will gradually shorten the wavelength a' the way down. Here we go."

Larsen hooded the nictitating membrane over his prominent eyes, and pointed to the smooth area on his chest. Wolf watched in silence. For a while the oval remained grey, then it finally glowed a deep red. Almost imperceptibly, it moved gradually to yellow, then to green and on to a pale violet-blue before it faded.

Wolf shook his head. "I'll have to just take your word for it, John. I didn't get anything except the usual visual spectrum. You know, you're the ultimate chameleon. When you get through all the tests here, you and I ought to go on tour. There's been nothing like this in the history of form-change—and we've seen some

pretty strange stuff between the two of us."

"I wi' do it, Bey, if you can find a good way of moving me around. You'd have to duplicate this who'e area." He indicated the inside of the great tank with a wave of massive forearm. "How much did it cost to set this up so I cou'd live in it? It's comfortable, but I'm glad it didn't have to come out of my sa'ary."

"I don't know what it cost," said Wolf. "Ling set up the credit, and made all the physical arrangements, before he disappeared again. I guess it all comes out of some USF budet. He certainly had enough credit to impress the proprietors of Pleasure Dome, and we know that's not easy. I still have no word on him, no idea how he got away from here, where he went—anything."

Larsen nodded his broad, wrinkled head, with its wreath of ropy hair. "You won't hear from him again unti' he wants you to, if you ask me. I found out a 'ot about him, in those few weeks that he was working with me, making sure I cou'd survive a' right in this form. I'm sure you were right in what you said. 'ing is Capman, no doubt of it. He seems to have found ways to move on and off Earth, and round the So'ar System, that we can't even track."

"I know." Wolf rubbed at his chest, his habitual gesture of frustration. "Losing him once was something that I learned to live with. Losing him the second time is unforgivable—especially when I *knew* he was Capman, knew it in my bones, long before he took off again. He once said he and I would recognize each other anywhere, regardless of disguise, and I believe him. As soon as you're ready for a reverse change, we'll go and have another look for him. I'm more

convinced than ever now that we didn't really understand most of what was going on at Central Hospital."

"I don't know what he did there, Bey, but there's no doubt that he saved my skin."

"How long before you can go back to your old form, John? BEC should be getting close to plotting out all the steps. I'm keen to find out the details, but I know they want to find out how to go both ways before they start the reversal."

Larsen laughed, and it came as a harsh, glassy noise over the speakers. "Don't rush me, Bey. First of a', now that I fee' sure I *can* reverse when I want to, I am in 'ess of a hurry. According to BEC, it wi' need a fu' four weeks in a form-change tank, and you know what a bore that wi' be. Anyway, I am not sure that I even want to change back."

Wolf looked at him in surprise.

"I mean it, Bey," Larsen went on. "You know, when I 'ook back on it I know I was not too smart in the human form of John 'arsen. I can remember what a strugg'e I used to have to try and fo'ow your thought processes—and often I cou'd not do it. Now it is easy for me. I used to forget things, now everything I hear or see is waiting to be reca'ed."

He leaned back in the sturdy supporting chair, resting his three hundred kilograms of body mass.

"And there is something e'se. Me on'y found out about it during the tests today. I suspected I had it, but I had no idea how we' deve'oped it is. Do you remember the troub'e I had with math? Even with ordinary arithmetic, even with an imp'ant?"

Bey sighed. "It would be hard to forget it, even without total recall. You were practically famous for it. Doughhead Larsen, Smith used to

call you in the theory courses."

"You don't know how often I wished he would form-change to a toad—it was his natura' shape. Anyway, ask me something that ought to be hard for me, something beyond John 'arsen's grasp."

Wolf frowned. He scratched his dark head thoughtfully. "John, almost *everything* was. How about special functions? I seem to recall that they were your big hate, whenever they came up in the form-change theories. Do you remember anything at all about the Gamma function?"

"How many figures would you 'ike? Suppose I give you six digits, and step the argument in interva's of a hundredth? 'ike this. Gamma of 1.01 is 0.994326, Gamma of 1.02 is 0.988844, Gamma of 1.03 is 0.983550, Gamma—"

"Hold it, John." Bey held up his hand in protest. "I don't want the whole table—even if you know it. What happened, did Capman fix you up with a calculator implant when he was working with you in that first couple weeks?"

"No imp'ant." Larsen laughed again, and Wolf winced at the noise like shattering glass. "It is bui't in, comes free with the form if you are a 'ogian. I don't even know if it is ca'culation or memory—a' I know is, when I want them the numbers and the formu'ae are there waiting. Do you see now why I am in no hurry to change back?"

The glass panel that separated them was thin, but it had to withstand a pressure difference of almost three atmospheres. Wolf was reluctant to lean against it, even though he was sure it would take the extra load with no trouble. He came close to it, and peered through at the alien form.

"Bottom, thou are translated. Much

more of this, and I'll feel like a moron. I'm not sure my ego will be able to stand it unless you get started on that reverse-change."

"'et me give it one more b'ow, then." Larsen leaned forward, scratching at his side, where the great, grey torso framed the oval central display in his chest. "You have been trying to trace Robert Capman for four years, and you have not succeeded. Now he has disappeared again and you do not know where you might find him—but do you rea'ize that you have more information now than you ever had before?"

He scratched the other side of his chest. "I think I wi' complain about this skin, it does not fit right."

"More information?" Wolf had lost the last trace of sleepiness. "I don't see how I have more. We know that Ling is Capman, and I've tried to pursue that. I get no cooperation at all from the USF people. Either they don't want Capman extradited to Earth, or they don't care either way. I put a call through to Park Green this morning in Tycho City, and he has been told to get back to his other work and not waste time looking for Capman. So where's the new information supposed to come from?"

Larsen had stopped scratching and picked up a green wedge of fibrous sponge. "I have to eat this stuff to keep me a'ive, but I fee' sure it was never the standard 'ogiam diet. It tastes 'ike the outflow from the chemical factory." He touched it to the delicate fringes on his mouth, that served as both taste and smell organs. The expression on his face changed. He closed his eyes briefly, then placed the spongy mass down again on the rack by his side. "Now I know how they must fee' in the famine areas when they get their rations of

five-cyc'ed pap. Maybe I wi' reverse-change now. It is ages since I had any decent food, I think I am beginning to forget what it tastes 'ike."

"New information, John," prompted Wolf impatiently. "I know you're doing it to annoy, and I know you're sitting there luxuriating in the thought that now you're three times as smart as I am. You ought to realize that anything about Capman puts me onto full alert."

Larsen moved his head forward in a self-satisfied Logian smile, but did not speak.

"How do we have new information?" went on Wolf. "We haven't had anything useful from the USF, and if you learned something during the weeks you were working with him around the clock, getting adjusted to the Logian form, this is the first time you've mentioned it. So, what's new?"

"A' right, Bey, no more sta'ing. 'et us app'y simp'e 'ogic, and see what we can deduce. First, think back to your origina' idea that Capman was somehow *responsib'e* for the 'ogian forms that were found in the Mariana Trench. That turned out to be wrong. So, it wou'd be natura' to assume that Capman shou'd have had no interest in 'oge before the arriva' of the unknown forms. On the other hand, Capman—as *Karkl 'ing*—was a 'ead-ing expert on 'oge, and everything to do with it, years ago. 'ong before the forms appeared on the scene. Where does that idea take you?"

Wolf peered into the poisonous atmosphere inside the tank. "*Tokhmir*, John, I hate these conversations in separate rooms. It's worse than a video link."

"Now who is sta'ing? You can come in if you want to, Bey, the air is fine—once you get used to it. Now, answer my question."

Wolf nodded. "It's a good question, and it's an obvious one. I must have been a lot more tired than I realized in the past few weeks. It's been hectic out here since you began to change. All right, let me think."

He sat down and leaned his head forward on his hands. "Capman became Ling. So, either he knew about the Logian forms before we called him in to help, or he had some other reason for being interested in Loge. I find I can't believe he knew about the forms before we went to Pleasure Dome—he really was working it all out for the first time there. That leaves only the other alternative: an interest in Lege, but one that was nothing to do with the Logian forms. That sounds improbable to me."

"Improbab'e or not, it is the on'y reasonab'e conc'usion. So now"—Larsen's voice rose in pitch, and the color of his oval breastplate glowed more intensely—"carry the thought to its end point. What is the next step for you to take?"

Bey was nodding, his head still bowed. "All right. You've got something. The added piece is one simple fact: Capman's prior interest in Loge. Now I guess I have to trace the background on that. I think I know the best way to do it. Park Green has access to all the USF data, and he should be able to trace Ling's movements and background." He looked up. "Maybe I should get into one of the tanks myself and switch to a Logian form. I could use the boost in brains."

Larsen nodded seriously, head and trunk moving together. "You may think you are joking, Bey, but it is an idea that you ought to be taking more serious'y. I can't describe how it fee's to be smarter than I was, but I 'ike the sensation. When we get a' the

reverse-change p'otted out, there wi' be a 'ot of peop'e who wi' want to try this form."

Larsen opened his mouth wide, revealing the bony processes inside and the rolled, mottled tongue. "Excuse me, Bey. The 'ogian yawn is a 'itt'e disgusting, if I can be'ieve the mirror. If you are going to ca' Park Green, I think I wi' go back to the s'leeping quarters and try and get some rest. We sti' haven't pinned it yet, but the BEC peop'e now think I am on a seventeen hour cyc'e. A' these tests are wearing me out. Ten hours so far, just on my eyes! At 'east I know what the first reverse-change step wi' be—I want to be ab'e to say my own name." He stood up. "Say hi to Park from me—you know I cannot say he'o to him."

When Wolf had left for the comlink center, Larsen turned and walked heavily through to the inner room that contained the sleep area. His movement was silent but ponderous, gliding along on the round padded feet that ended the bulky iower limbs. In the screened inner area, he went at once to the communications panel that had been built into one of the walls. The thick rubbery pads on his digits were avkward for the com-link's small keys, but he managed to dial a scrambled connection for an off-Earth link. When the circuit was established, Larsen at once began transmission.

Expressions on a Logian face were not easily read by any human, but perhaps some of the BEC specialists who had been working with Larsen for the past few weeks would have seen the satisfaction on his countenance as he began his message. The comlink coded it and hurled it on its way as a tightly focussed beam, up to the relay by the Moon, then far on

beyond to its remote destination.

Chapter Two

THE SOCIAL PARAMETERS were tabulated on color displays all around the offices of the General Coordinators. Eighteen key indicators, in a stylized map format, dominated the central office, and summaries in cued form were given by each chart. Next to the ninety day history was the current ninety day forecast, showing trends and rate of change of trends.

In the center of the room the six chief planners had gathered, grim-faced, around the circular table. The picture was clear. The perturbations to the usual stable pattern were unmistakable, and they were growing steadily in spite of all attempts to stabilize them. A certain level of statistical variation was tolerable—indeed, was inevitable—but perturbations beyond a certain size, according to Dolmetsch doctrine, would force a major change. The new steady state of the system was difficult to calculate, and there was not a general agreement on it. One school of theorists predicted a partial social collapse, with new homeostasis establishing itself for a reduced Earth population of about four billion. That was the optimist view. Others, including Dolmetsch himself, thought there could be no new steady state solution derived continuously from the old one. Civilization must collapse completely before any new order could arise from the ruins.

None of the planners was a theoretician. For practical people, it was hard to distinguish between theoretical alternatives, where one meant the death of ten billion and the other the death of fourteen billion. Both were unimaginable, but the in-

indicator profile was not encouraging.

The group leader finally picked up his pointer again, and shook his head in disgust.

"I can't tell if we're even touching it. There are improvements here"—he gestured at the area centered on the Link entry point in Western North America—"but everything is going to hell again in the China region. Look at that violence index. I haven't looked at the computer output, but I'll bet the death rate from unnatural causes has tripled."

The woman next to him looked at the area indicated. "That's my home town, right at the trouble center," she said quietly. "Even if we don't know the best course, we have to keep on trying."

"I know that—but remember the rules when you leave today. No public comments unless they're optimistic ones, and no release of anything longer than the sixty-day forecast. God knows, though, that's bad enough all by itself."

They stood up.

"How long do we have, Jed, before we're past a point of no return?" she asked.

"I don't know. Three months? Six months? It could go very fast once it starts, we've all seen the snowball effect-on paper." He shrugged. "We can't say we haven't worried about something like this before. Half the papers on social stability in the past twenty years have predicted trouble at better than the fifty percent level. Well, there are a few positive things we can do in the next day or two."

He turned to the woman next to him. "Greta, I'll need a summary of the whole situation to send to the USF headquarters. Dolmetsch is up there now, and he can do the briefing. Sammy, I want you to see how the

USF react to the idea of lending us an energy kernel for a few months, and orbiting it above Quito in synchronous station. If we hear the power down, it will help the local energy problem in South America for the next month or two. Ewig, I need the latest data from Europe. I have to brief the Council in an hour, and Pastore is sure to ask what's happening in Northern Italy. I'll be back to pick up the material in twenty minutes—I need time to study it before I go in there."

He hurried out. The noise level in the big room rose rapidly, as the planners speculated on the meeting, and redoubled their efforts to apply stabilizing influences to the world economy. One hope sustained them all: it was not the first crisis of the past half century. They had always managed to find the right combination of restorative measures to arrest the oscillations in the social indicators. But this one looked bad. Like a shore community bracing for the arrival of a hurricane, the planners prepared for a long, hard struggle.

PARK GREEN, seated in the Permanent Records Center six kilometers beneath the surface, completed the listing he wanted. He looked at his watch, whistled, stored the output he had generated into his percomp, and signed off the computer terminal. He sat in silence for a few minutes, reviewing everything that he had found, then looked again at his watch. Bey would still be up, even though he was on Central Time instead of U.T., but if he didn't call him now he would have to wait another ten hours. Park decided to delay his return to the living sections, and put in a request for a comlink to Earth.

The connection was almost

instantaneous—at this hour, traffic was light. When Wolf's image appeared on the holoscreen, sleepy-looking and irritated, Park decided he must have made a slight error in his time calculation. He concluded that it was no time for the conventional greetings.

"It's a mystery, Bey," he began. "A complete mystery. The records here look as though they are intact, with full data on Ling—personal data—going back for fifty years. I agree with you that Ling is Capman, but how can he be, if he has full records like this?"

Bey rubbed his eyes and came more fully awake. "Full records, eh? For most people, that couldn't be faked. But we had evidence a few years ago that proved Capman is a master at manipulating computer software. Stored data isn't safe when he's around. There's a good chance that most of Ling's 'history' is a *constructed* background, made up and inserted into the records by Capman. He must have had some cooperation to do that, though. There must be some leaders in the USF who are helping him—an ordinary Earth citizen would have no way to get started. Somebody up there with you helped Capman get access to your data banks."

"I don't see how they'd do that." Green looked at the computer terminal next to him. "Most of the files here are read-only memory. How could he affect those?"

"Most read-only memory is software protected—it's not special-purpose hardware."

"But how would he know which type he had to deal with? Well, I'll leave that one to you. I've been trying to trace Ling, and all I can really find out is that he isn't on the Moon,

right now. According to the records, he's supposed to be down there on Earth. Are you sure he's not there?"

Wolf nodded. "Medium sure—you can't be all that certain with Capman, about anything. According to me, though, he's off-Earth. I checked every manifest, coming and going, and every mass record for lift-off. Unless he's found a new wrinkle, we've lost him again from the Earth-Moon system. Did you check the Libration Colonies?"

"Yes. They're easy, because they have no hiding places. He's not there."

"Well, keep looking on the Moon. I won't even guess what form he's wearing now—probably not either Ling or Capman."

Green stood up and leaned against the console. He looked depressed. "Well, Bey, what do you want me to do now? I'm dead-ended here, and you seem to be getting nowhere there. Any ideas?"

Wolf was silent for a minute, recalling his own experiences four years earlier, when he was first hunting for Capman's hidden tracks.

"I can only suggest one thing, Park," he said. "Capman gives this impression that he's infallible, but he's not. Last time I tangled with him I found there are limits to what he can do to change the data banks."

"He seems to have done pretty well here."

"Maybe not. He can change his own records, if he can get access to the protected files, but he couldn't change all the cross-reference files that might mention his name or his actions. That was the way we got a trace on him before, when I went through the medical records from Central Hospital. For some reason, Capman won't destroy other people's

records. That's his weakness."

"So what are you suggesting, Bey?"

"We have to try the same method here. We have to track him from the *indirect* references—other people's records, that somehow refer to him."

Green had a very dubious look on his face. "I know what you're telling me, Bey. But honestly, I wouldn't know how to begin a thing like that. I'm no computer hot-shot. How would I know *who* would be likely to have a reference to Capman or Ling in his file? There are three million people here in the USF. I can't go through three million personnel records, but that's what you seem to be suggesting."

"There are other ways, if you know how to handle sorts and merges." Wolf hesitated. "Park, is there any way that you could get me a direct hook-up to interface with the USF Permanent Data Bank? From here, in my office? It would be enough if you get me a read-only link—I don't suppose to try and change any of the files, only to analyze their contents."

"I don't see why not. After all, we have a full cooperative exchange program between the USF and Earth computer banks. Doesn't work too well sometimes, but this shouldn't be hard to do."

"If you can arrange it, I'll take a shot at the analysis myself, from here. If I find anything, I probably won't be able to follow up from here—but you could help on that, if you're willing."

"I'd be glad to. My trouble has been finding any lead to follow up. Bey, let me check this out and call you back. Tomorrow," he added hastily, noticing again Wolf's rumpled hair and appearance of broken sleep.

"No. Call me tonight if you get approval."

"All right. One other thing I need

from you, though—a charge code. The comlink hook-up will be expensive. Do you have a budget that will cover it?"

Wolf nodded. "No problem." He keyed a fourteen digit code for transmission to the Tycho City accounting bank. "One thing about the Office of Form Control, it may run out of toilet paper but they never stint you on comlink costs. One other thing, if you can get access for me but not remote access, take that. I'll make a trip up there if I have to, and work from your terminal. It would be better from here, though, so I can keep my eye on John."

Green nodded. "I saw him yesterday, being interviewed on holovision. Do you know, I think he's enjoying himself. He looks strange, but that doesn't seem to bother him. He was there in his tank, and they had a couple of Indian philosophers on the program with him. They started to debate whether or not John is human. He tied them in logical knots. By the end of the program he used their own arguments and had them deciding that *they* weren't human."

"I didn't see it, but I can imagine it. I wouldn't like to get into an argument with him now—he's smarter than he ever was. If all the Logians had that caliber of mental equipment, it's lucky for us they aren't still around. They'd have us all doing whatever they want, and convinced that it was all for our own benefit."

Wolf yawned, and stretched luxuriously. "But you're right, Park. John is enjoying himself—he was a good deal less happy before we were sure that a reverse-change would be possible."

"I'll believe that." Green nodded, and reached out his hand to cut off the connection. "As a matter of fact, I wouldn't mind total recall and in-

creased brain power myself. I never seem to really know what's going on here these days. With Dolmetsch in Tycho City, there are council meetings going on around the clock. The news takes a while to filter down to my level, but there must be trouble somewhere. I'll call back as soon as I have an answer on your question—that shouldn't take more than an hour or two."

Chapter Three

FOUR YEARS EARLIER, Bey Wolf had sworn that once was enough; he would never attempt it again. Now he was in much the same situation, but he was faced with something even harder. Instead of sorting through the structure of Central Hospital's medical records, he was working with the data of the whole of USF. The planetary information file was a maze, and he was in the middle of it, looking for signs of Karl Ling's early work. The path he was following in the records crossed and re-crossed itself. First it appeared to be leading to something promising, then it petered out or led him to a restricted record area that only the USF leaders could access. It was a labyrinth without an Ariadne.

Bey ploughed doggedly on from his Office in Form Control, fourteen and sixteen hours a day. It was almost a week before he had the smell of a lead, another week before he had enough to make it worth discussing with anyone. When he finally dumped his output and cut the connection to Tycho City, he was ready to talk it over with John Larsen. He went again to the viewing panel that connected to the Logian living quarters.

Larsen was not alone. Maria Sun was standing by the viewing panel,

along with three other engineers from BEC. Maria, after the help she had given in modifying Larsen's form-change tank when the Logian change had first begun, felt a proprietary interest in the progress of her delivery. Now, however, she was not pleased. She turned to Wolf in exasperation as he approached them.

"Bey, give us your opinion, will you? Who will own the rights to the form-change programs that were involved when John changed? I want to get all the details, but nobody will even tell me who I ought to be talking to. All we get at BEC are hearsay and wild stories about Karl Ling, and the monster here won't tell me a thing."

Bey looked in through the viewing panel to the big living area, where Larsen was sitting comfortably on his specially-built chair with its accommodation for the double knee. He gave Bey a nodding of the head, that no doubt was the Logian version of an irritating smile.

Wolf could not resist a quick wink at Larsen, which he hoped went unobserved by the BEC group.

"It's only my opinion, Maria," he said, "but I'd say John owns the rights himself, by default. He and Karl Ling are the only ones who know the whole story on the programs that they used, and if you're going to track down Ling I wish you luck. I've been trying that myself for the past month. It's not easy. I want to talk to John about it."

Maria Sun stepped away from the panel and shook her head in disgust. "I'll come back later, when you've finished." She looked again at Larsen. "According to the outputs I've seen, the life-ratio for that form is more than three. I'm really interested in his body."

"—you shou'd have taken me when you had the chance," said Larsen.

She glared at him. "I don't know how much fun it would be to wear a Logian form, but he"—she gestured with her thumb at the inside of the tank—"seems in no hurry to get out of it. If it's comfortable, and if it really lets you live that long, a lot of people will be interested in it even if you have to live in a tank to get the benefit. The fellows back at BEC are talking already of building more big tanks. It could be the hottest thing in next year's research budget."

She gave Larsen another scowl. He lifted his great arm and waved at her without speaking. Accompanied by her three companions, Maria swept out.

"Se wi' be back," said Larsen as soon as she had gone. "Maria never gives up on a new form."

"I know," replied Bey, pulling a chair close to the observation panel. "Be nice to your girl friend, John. She did more than anybody else to pull you through when the changes first began—more than I ever could. Well, let's get down to business. This may feel like old times to both of us—tracking Robert Capman through the data banks."

"Except that this time, Bey, I intend to understand what you are doing. 'ast time it was a mystery to me. I've had the opportunity to 'ook at the computer system in the past few weeks, and I suspect that I grasp the concepts properly for the first time in my 'ife." Larsen rubbed at the ropy hair on his rounded skull with a bony protuberance that projected from the second joint of his left upper limb. "I hope, though, that this time you do not want to drag me through O'd City—I wou'd have some problems carrying my 'ife-support packages with

me."

"If I'm right, we'll have to go a lot further than that," said Wolf calmly. He settled his percomp on his knee and began to call out displays. "Let's start at the very beginning. That means going back more than ten years."

"Wait a minute, 'ing was sti' Capman ten years ago," protested Larsen.

"He was both. I thought that if Ling were an expert on the Solar System, he'd have had to write papers on it—real papers—and that meant that others would have referred in *their* papers to his work. I began by scanning the citation index in the Tycho City reference files. It wasn't easy. I suspect that a lot of references to Ling's work have been deleted, but I managed to trace him. I even obtained a display of an actual paper, published nearly ten years ago. So his interest in Loge—that was discussed in the paper—is real, and it goes back long before Capman was forced to disappear. Any deduction that you'd care to make based on that, John?"

Larsen made a gesture like a shrug, a rippling upward movement of his upper body. "I can make the obvious one. Capman had known for a 'ong time that he might get caught one day. He knew he'd have to prepare his retreat in advance. Somehow, he estab'ished the character of 'ing, and his interest in 'oge was something that he had to deve'op for his own convenience, probably because it was important to his continued experiments."

"That's my conclusion exactly." Wolf entered a confirming note to his file. "So then I took a closer look at Ling's publications. That's when I found something a little different from the way that Park Green had described it to us. Ling was an expert

on Loge, that's true—but if you look at his publications, the ones that he tried to cover up in the literature, you find that Loge is the minor part of it."

Larsen nodded. "That is no surprise. It is hard to re'ate his interest in form-change to any simp'e interest in 'oge."

"He's interested in the Asteroid Belt. He wrote a series of papers about its formation—and he did a really big series of papers on some specific asteroids. If you catalog all his work, only a few deal with Loge, and most of them concern one group of asteroids. Did you ever hear of the Egyptian Cluster?"

Larsen nodded. "Yes. If you had asked me that a month ago, I'd have had to say no, but I can absorb information faster now, and I have had a 'ot of time to spend with the termina' here. Most of the free hours when you were not giving me tests, I have been catching up on my reading."

He leaned back and closed his lustrous eyes. "The Egyptian C'uster. I think I can quote the re'evant texts verbatim for you. 'A group of about one hundred asteroids, with orbits that are different from a' others in the Be't. They 'ie in an orbit p' an a'most sixty degrees from the ec'iptic.' 'Et me see, what e'se?"

Larsen opened his eyes again for a moment. "Excuse me, wh'ie I scan my interna' fi'es." He was silent for a few seconds, then nodded. "Here we are. What are you interested in? Members of the C'uster, masses, orbits?"

"How about history."

"No." Larsen grimaced, new wrinkles appearing in the grey skin. "That is an area of the fi'es that I have not read yet."

"That's a relief. I was beginning to

think that you knew everything." Wolf consulted his output displays. "Store this away. The Cluster was discovered by accident, in 2086, during a deep radar search program. They were surveying the Halo, looking for power kernels. First visited during the Outer System search. According to the Ling paper that I found, all the asteroids in the Cluster were formed out of one piece of Loge, after the main explosion of the planet. Most of them are small, five kilometers or less, but there are a few bigger ones."

"That much I know. The data bank 'ists a' the main members. Five of them are bigger than eight ki'ometers in mean diameter—Thoth, Osiris, Bast, Set and Anubis. No transuranics on any of them. They must have been formed from a piece of 'oge's core. There is a mining sett'ement on Isis, and another on Horus, main'y for the rare earths. No permanent sett'ements on any of them. They seem 'ike a very du' group. Why the big interest in them?"

"I'm getting to that," said Wolf. "You're right, they are a remote lot. It's not the distance, but they're so far out of the ecliptic that it takes a fair amount of fuel to match orbits with them. That's why they aren't a good commercial prospect, even though the lodes of minerals are rich, especially on Horus. The one I'm interested in isn't one you've mentioned. What do you know about Pearl? Anything in your head on that one?"

"Hum. I think I need to go back to my references and dig deeper. I have a 'itt'e information, but there must be more. Pear' used to be ca'ed *Atmu*. That fits in with the idea that it is part of the Egyptian C'uster, but I don't know why it was re-named."

"That's because you've never seen a

picture of it. You're quite right, it was named Atmu when it was first discovered. A good name for one of the Cluster; oldest of the Egyptian gods. But the first expedition there, forty years ago, changed the name. Other factors seemed more important than the mythology. Pearl is quite small, less than two kilometers across—but it's an odd shape; a perfect sphere of white, fused glass."

"Wait a moment, Bey." Larsen was shaking his great head. "That sounds wrong to me. If it is made of glass, it must have been part of the outer crust of Loge, near enough to the surface to be full of silicates."

Wolf looked up from his records, and shook his head admiringly. "It took me a while to come to that conclusion, John. You're getting too smart for your own good. I finally decided it was part of the outer core, deep enough to be very hot, and near enough the surface to have the silicates. It's a very small piece of Loge. The diameter is listed as 1.83 kilometers. Now, do your records include a mass figure for it?"

Larsen's broad skull and upper torso dipped forward in a nod. "I show a mass of about one billion tons. That means—" He paused, looked up at the ceiling of the tank. "That can't possibly be right. Unless . . ."

Wolf was nodding. "Go on, John, let the calculator run free for a moment. You're heading in the right direction."

Larsen shrugged his heavy shoulders, again the upward rippling movement of the body. "With that diameter, it must have a density of less than thirty-five kilos per cubic meter. Fused silica glasses mass at least two tons per cubic meter. So . . . it must be hollow."

"Quite right." Bey was nodding his

agreement. "It's as thin as an eggshell. The references give the inner diameter as about 1.7 kilometers. Pearl is nothing more than a big, delicate glass bubble, blown by trapped gases inside the fragment when Loge exploded. It's classified now as one of the protected asteroids. The USF declared it one of the natural wonders of the System. No one is allowed to land on it—but I think that rule is being broken."

Wolf paused. He felt that there had been an inconsistency in Larsen's replies, but he couldn't put his finger on it. After a few moments, he went on. Larsen continued to sit there motionless, his luminous eyes unblinking.

"Let me give you one more fact, John, then you can tell me what you make of all this. Nine years ago, Karl Ling wrote twelve separate papers on the structure, formation and stability of Pearl. All references to those papers have been deleted—I had to dig out the information by indirect references. Do you recognize the pattern? It's the one that we saw with Capman's medical records back in Central Hospital."

Larsen nodded calmly. "I see where you are heading. You think that Pearl holds some special secret, something that keys you to find Capman. It is possible, Bey, but I see one problem. You are suggesting that Capman managed to create the person of Ling, at the same time as he was the Director of Central Hospital. How could he do that?"

Wolf stood up, and began to pace up and down in front of the viewing panel. His manner was tense and nervous. "I checked that, too. All Ling's early papers show an Earth address. His other records show him living on Earth until six years ago.

then moving to the Moon. That's the USF files—but the Earth ID files don't show anything for him at all. I suspect that the USF chromosome ID they have is faked. One more thing, then I'm done. Capman's travel records at Central Hospital for the final two years before he was forced to run for it show that he was off-Earth far more than ever before. He always seemed to have a good reason for it—hospital business—but he would have had no trouble making up a reason, he was the boss."

Larsen was nodding his head and trunk slowly, eyes unblinking.

"And so, your conclusion, Bey? What do you propose to do next?"

Wolf stopped his pacing. His manner was resolute. "First, I'm heading for the Moon. I have to know more about Pearl, and I have to know why Capman was interested in it. I'll be leaving tomorrow. I don't like to leave you out of it, but you're in good hands here. Maria will do all that you need if you want to begin reversion."

"Of course, that is no problem. But one thing before you go, Bey." Larsen was looking directly at Wolf, his gaze steady and penetrating. "You ought to ask yourself one other question. *Why* do you pursue Robert Capman with such zeal? Even if you think he is a monster, why is he so important to you?"

Wolf, who was turning to leave, was topped in mid-stride. He swung quickly round to face Larsen through the viewing panel. "*Tokhmur!* You know that, John. There were two other projects in Capman's background at the hospital. We only traced two of them, Proteus and Timeset. What about the others? I want to know what Lungfish and Amphibaena are. They're still complete mysteries. That's what fascinates me

about Capman."

His tone was defensive, not quite steady. Larsen looked at him quietly for a few moments.

"Ca'm down, Bey. They are mysteries, I agree. But is that sufficient reason? I don't think so. We've had unsolved mysteries before in the Office of Form Control. You managed to leave them alone after a while, didn't you? Remember when we were backed on the form changes in Antarctica? We were put off that, and we hated it—but you managed to live with it after a month or two. This has chased you, and you've chased Capman, for more than four years. Think about it, Bey. Do you have to keep up the hunt?"

Wolf's eyes were introspective and thoughtful. He rubbed his fingers absently along the seam of his loose jacket.

"It's hard to explain, John. Do you remember the first time that we met Capman, back in Central Hospital? I had the feeling, even then, that he was an important figure in my life. I still have that feeling." He paused, then shrugged. "I don't know. I'm not a believer in paralogic, and I don't find my own words very convincing. All the same, I have to go. I'm going to tell Park Green that I'll be up there in a couple of days."

He hurried out. It was John Larsen's turn to become thoughtful. The hulking alien figure sat in silence for a few minutes, then went through to the inner living quarters. He seated himself before the comscreen and opened the high data-rate circuits. When the ready light appeared and the array of sensors was ready, he keyed in the destination. The prompter waited, until the link was complete.

Larsen looked at the face that had

appeared on the screen.

"Burst mode," he said softly.

The other nodded and activated a switch to his left. Larsen closed his eyes and leaned back in his chair. The smooth grey oval of skin on his broad chest turned to a pale rose-pink, then swiftly became a dazzling kaleidoscope of shifting colors. The area now contained a multitude of separate point elements, each changing color as fast as the eye could follow. Larsen sat rigid in his chair, but after twenty seconds he began to draw in shallow, pained breaths. The brilliant display on his chest flickered on, a bright, changing rainbow shimmering like a winter aurora. The great body was motionless, racked by an unknown tension as the patterns fed into the communicator screen.

Eight thousand miles away, at the global communications center in the South Pacific, the com monitors began to flash red. There was an unexpectedly heavy load on the planetary com circuits. Auxiliary channels automatically cut in. Through a thousand output displays, the worldwide network complained to its controllers at the sudden excess message burden. The load ended as suddenly as it had started. In his tank, Larsen lolled back in his seat, too drained to sign off with his distant receiver.

Chapter Four

THE JOURNEY to Tycho City was supposed to be routine. Wolf had gone by aircar to the nearest Mattin connection, linked twice to get to the Australian exit, and taken a ground car to the North Australian spaceport. After a rigorous USF inspection and certification—no wonder, thought Bey, that the staff of Pleasure Dome had given up on the idea of getting

the Jason's crew off Earth—a scheduled shuttle took him up to equatorial parking orbit. The Lunar connection was due in three hours.

On the journey to the spaceport, and up to orbit, Wolf was preoccupied with Larsen's last question to him, and with the simple practical details of his departure. Then, waiting for the lunar transport, he was surprised by an urgent call from Earth. He went along the corridor to the main communications center.

There was a brief delay in establishing the video link. When the channel was available, Maria Sun's image appeared on the tiny utility screen. Her china-doll face looked grim and suspicious.

"All right, Bey," she began. "You don't have to be nice to us at BEC, I know that. But just let me remind you that if I hadn't helped you, you might not have been able to save John Larsen. So—*what have you done with him?* The USF people at the Australian spaceport swear that he's not with you, and none of the other manifests show any extra people or equipment."

It took Wolf a second or two to grasp her meaning.

"I've not done a thing with him," he said. "You're telling me he's gone, but he ought to still be in the living quarters at Form Control. There's no other place with a life-support system for him. Did you check—"

He stopped. Maria was shaking her head firmly. "We've looked everywhere in Form Control. One thing I'm quite sure of, he's not here. Bey, that system Ling and I fixed up for John is really fancy. If he doesn't have a special environment, he'll die within hours. Are you telling me that you didn't arrange this between the two of you?"

"Maria, I'm as surprised as you are. Damn it, I was with John yesterday, talking about my trip to Tycho City. He didn't give any sign that he wasn't going to stay just where he was. I agree with you, he *had* to stay put, he wouldn't last a minute without that special atmosphere."

Maria bit at her full upper lip. She shook her head in perplexity. "I believe you, Bey, if you swear that's the truth. But then what is going on?"

Bey looked past the viewing screen. He was beginning to feel a prickling sensation at the nape of his neck. A number of small factors from his discussions with Larsen began to sum in his subconscious. The curious arrangement of Larsen's living quarters, the elaborate comlink that Ling had arranged—ostensibly for tuition purposes of the new form—the way that Larsen had steered the conversation, all was coming together. Bey needed to think it out in detail.

"Maria," he said at last. "I told you I didn't know what happened, and I was telling the truth. But all of a sudden I'm getting suspicions. Let me call you back later. I know John couldn't live without his special equipment, but I don't think we should be too worried about that. Give me a couple of hours to do some thinking, and let me call you back."

Without waiting for her reply, Wolf pushed himself away from the console and drifted slowly back through the ship to the transit area. He settled himself in one corner, lay back, and let his thoughts roam freely back over the past few weeks, picking out the anomalies.

They were there. Strange that he hadn't noticed them before. Even so, it was disturbing to realize that he could be led so easily, even by someone he trusted completely. For the

future, he would have to remember that he was dealing now with a new Larsen, one whose mind was quicker, clearer and more subtle than it had ever been in the past. Look at the tuition circuit that Ling had installed. Larsen needed to be able to acquire information from scattered data sources all around Earth. True enough. But why had he needed an off-planet capability, why a complete two-way link, why a circuit rated at many thousands of voice-grade lines?

Wolf's thoughts were suddenly interrupted by a flicker of movement at the port. He looked up in surprise. A crewman was looking in through the panel, held securely against the outer hull by suction cups on his wrists and ankles. He was checking part of the antennae Wolf couldn't resist a closer look. It was the first time he had seen a C-form development in its space environment.

The crewman's skin was thick and toughened, and his eyes were coated with a thick transparent layer of protective mucus. He wore no air-tank or protective suit. The modified lungs, structurally modeled after the deep-diving whales, could store enough oxygen, under pressure, to work outside in comfort for several hours. The scaly skin was an effective seal against loss of fluids to the hard vacuum surrounding it. The hard ultra-violet was screened out by abundant melanin surrogates in the epidermis.

Wolf watched as the crewman moved off easily along the hull, quite at home there. He sighed, as his thoughts came back to his own stupidity. Larsen had led him, coaxed him easily along, to find out more about Ling, more about Pearl. So Capman wanted him to be aware of that connection, wanted him interested in the Egyptian Cluster—there was no

doubt now that Larsen and Capman had been in regular communication, ever since Capman Ling's disappearance a few weeks earlier. Larsen had moved Bey steadily along in his thinking, to the point where Bey had made his decision to set off for the Moon. With that accomplished, Larsen had promptly disappeared. He couldn't have done it without help, but it was quite clear where the help had been coming from. Capman, with resources available to him that Bey could still only guess at, had removed Larsen from the Form Control offices, and sent him—where?

Bey was getting ideas on that question, too. Although it was only ten minutes to ship separation, he hurried back to the communications center and placed a quick call to Tycho City. When Park Green appeared on the screen, the first buzzer had already sounded to tell Bey to get back to his seat.

"Park, I'm on my way and don't have time to say much." It was Wolf's turn to dispense with formal greetings. "Check if there's a ship available with enough fuel capacity to make a trip right out of the ecliptic, up to the Egyptian Cluster. If there is, charter it. Use my name, with Form Control on Earth as surety. Don't say where I want to go with it. I'll see you in twenty-four hours. Tell you everything then."

The purser, his face red-veined with vacuum blossom, was motioning to him urgently. Wolf cut the connection, swung hastily back to his seat, and strapped in.

"Cutting it fine," said the purser gruffly.

Wolf nodded. "Urgent call," he said. "You know, I just saw a C-form working outside the ship. I thought they were still forbidden for USF

work."

The purser's expression became more friendly, and he smiled.

"They are. There's a little game being played there. The C-forms aren't USF men at all. They're part of a student exchange program—Earth gets a few specialists in power kernels, the USF gets a few C-forms."

"What do you think of them?"

"The best thing to hit space since the cheap vacuum still. It's only the unions who are holding things up. Job worries." He looked at the read-out at his wrist. "Hold on now, we're cutting ties."

As the ship began the slow spiral away from parking orbit, Wolf switched on the small news screen set above the couch. Movement about the cabins would be restricted during the high-impulse phase of the next hour. He turned to the news channel.

The media had picked up from somewhere a surmise that John Larsen was missing. It was a small item, far down on the news priorities. More to the public interest were the latest statements on the social indicators. They were still oscillating, with swings of increasing amplitude. Even with the power kernel beaming down to Quito, energy was still desperately short in South America. The famine deaths were rising rapidly in northern Europe. Compared with the mounting crisis that faced the General Coordinators, Bey realized that his own preoccupations were a tiny detail. But he could not rid his mind of Larsen's question. Given all this, why was Capman as much on his mind now as he had been four years before?

From where he was lying, Wolf could see ahead into the pilot's station. The computer could handle most things, but the man preferred to op-

erate in manual mode for the beginning of the trip. It was another C-form, added proof that events were moving faster than the union wishes. The pilot, hands and prehensile feet delicate masses of divided digits, was manipulating sixty controls simultaneously. Bey watched in fascination, while his thoughts continued to revolve around the same old issues.

AFTER THE FIRST, surprising moonquake, the second construction of Tycho City had placed the living quarters deep underground. Bey, vacuum-suited, rode the high-speed elevator down through the Horstmann Fissure, towards the main city more than three kilometers below. He left it at the optional exit point, half-way down, and walked over to the edge of the ledge. The preserved body of Horstmann, still scaled in his spacesuit, hung from the old pitons fixed in the fissure wall. Wolf looked at the Geiger counter next to the suited figure. The rapid chatter carried clearly to him through the hard rock surface. The half-life of the nucleides was less than ten years, but Horstmann would be too hot to touch for at least another century. The radioactivity could have been lessened more quickly by stimulated nuclear transitions, as was done with the usual reactor wastes, but the Lunar authorities were against that idea. Bey read the commemorative metal plaque again, then continued his descent through the fissure.

Park Green had managed to pull strings with Immigration and Customs. The reception formalities were smooth and very brief. Green's grinning face, towering a good foot above the other waiting USF citizens, greeted Wolf as he emerged from the third and final interlock.

"Bey, you don't know the trouble you caused me," he began, as he engulfed Wolf's hand in his own. "I didn't know how well-known you are. As soon as our people who've been working on regeneration methods found out that you were heading for Tycho City, they started to flood me with calls. They all want to know how long you'll be staying, what you'll be doing, the whole bit. I had a hard time stalling them. They want to meet you and talk about the work that you began a couple of years ago on transitional forms."

Wolf was a little startled. "They know about that work up here? I didn't think it was particularly surprising. All I did was follow up some of the clues that were buried in Capman's work. He had the idea."

"People up here don't seem to agree. If the clues were there, they must have been well hidden. Are you willing to spend some time with them? All they—"

"Look, Park, in other circumstances I'd be glad to," broke in Bey, "but we have no time for that now. Did you get the ship?"

"I think so—it will be a few hours before I know for certain. I've had a problem with that, too. All the forms I've filled out require an actual destination before you can get clearance for any trip longer than a couple of hundred hours. I checked your license, so at least that seemed all right."

"What did you tell them for a destination? Nothing specific, right?"

"I think that should be easy enough. I booked for the Grand Tour, all the way through the Inner, Middle and Outer System, right out to the Halo. Once that's approved, there'll be enough fuel and supplies on her to take her anywhere in the Solar Sys-

tem. One thing you ought to know, I charged it all to you—I don't have the credit for it."

"How much?"

Wolf winced at the figure.

"If all this works out," he said, "I'll get everything back. Otherwise, I'll be a slave to the USF for the rest of my life. Well, let's worry about that later."

As they spoke, Green led the way through the long corridor that led to the final clearing section before the main living quarters. He was sliding along in the fast, economical lope that all USF people acquired in early childhood. Wolf, not too successfully, tried to imitate it. The floor of fused rock felt slippery beneath his feet, and he had the curious feeling that the lunar gravity was a little lower than it had been on his last trip to Tycho City, many years before.

"No," said Green in answer to his question. "I think that physics here may be a little ahead of anywhere else in the System, but we still don't have an efficient generator. Gravity's one thing we haven't tamed so far. McAndrew came up with a method, a long time ago, for using shielded kernels for local gravity adjustments, and that's as far as anyone has been able to go. Nobody's willing to try even that much, down on a planetary surface. What you're feeling is a change in oxygen content. We put it a fraction of a percent higher about three years ago. You'll find that you get used to it in a couple of days."

"A couple of days! Park, I have no intention of *being* here in a couple of days. I want to be well on the way to the Cluster. When can the ship leave? I hope it's today."

Green stopped and looked at Wolf quizzically. "Bey, you're dreaming. You just don't know the problems.

First, there's no way they can get a ship ready in less than seventy-two hours. Damn it, it has to be equipped to support the two of us on a two-year trip—that's how long the Grand Tour can take. I know we're not really going on that, but they're getting her ready for it. Second—"

"What do you mean, support the two of us? Park, I'm not dragging you on this trip. It's a risky game, that far out of the usual System ship routes, and it may all be a complete waste of time. I'm going solo."

Green had listened calmly, towering way above Wolf. He shook his head.

"Bey, you're a real expert on form-change, I'll be the first to admit that. But you're a baby when it comes to space operations. Oh, don't say it—I know very well that you have your license. That's just the beginning. It means you're toilet-trained in space—not that you're ready to hare off around the System on your own. I'm telling you, no matter how confident you feel about your ability to look after yourself, the owners wouldn't agree. There's no way they'd even let you get *near* the ship unless I go with you—not once around the Moon, never mind the Grand Tour. It's got to be me, or you'll find they push some other USF pilot on to you—somebody you don't even know."

Wolf looked at Green's calm confidence. It was obvious that the big man was telling the truth. He shrugged, and resigned himself to the inevitable.

"It wasn't what I had in mind, Park. I wasn't proposing to drag you into all this when I asked you to help in checking Ling's records up here."

Green smiled slightly, and shook his head. "Bey, you still don't under-

stand it, do you? I'm not going along because I'm a kind-hearted martyr. I'm going along because I *want* to. Damn it, don't you realize that I've been itching to know what's been going on with John back on Earth, since the minute that I set out to come back to Tycho City? You could almost say that it was my fault that John ever got changed to a Logian form. If I'd been a bit smarter, and known what was happening, I might have been able to talk him out of injecting Logian DNA into himself. Get rid of the idea that I'm going along for *your* sake."

Wolf was staring up at the other's earnest face. "Sorry, Park," he said in a subdued voice. "I let my own compulsions blind me to everybody else's. You deserve to come along. I still wish we could beat that figure of seventy-two hours. I didn't plan on spending anything near that long here in Tycho City."

Green was smiling again. "You'll need that much time to prepare. And you still owe me some explanations. Your message from the ship set a new high for being cryptic. We're getting ready to go right out of the System, and you still haven't told me why. I heard that John has disappeared, and I know the two things are connected."

"We're not going out of the System, Park, just to the Egyptian Cluster."

"Same thing, to a USF-er. Technically, you're right, of course. The System goes all the way out to the long-period comet aphelia. But so far as anybody in the USF is concerned, when you go to an orbit plane that far off the plane of the ecliptic, you might as well be right out of the System. The delta-v you need is so big, and there are so few things of interest up there. We just don't bother to do

it very often. Do you know, I've never even *met* anybody who has been to a member of the Egyptian Cluster. I've been looking up the facts on it ever since you called me from the ship. I still can't imagine why you want to go there."

They were approaching the big, hemispherical chamber that marked the city edge. Beyond it, slideways led to the separate centers for manufacturing, maintenance, utilities and habitation. Agriculture and power were located back up on the surface, thirty-five hundred meters above their heads.

"I'll brief you on all the background as soon as we're settled in here," said Bey. "That won't take me more than a few hours. I don't know what plans you have to spend the rest of the time before we can leave, but I'd like to have another go at the data banks. There may still be things in there that I missed last time, on Capman's activities here as Karl Ling."

"You'll have time for that. There will be other things, too." Green pointed ahead of them, to where a small group of men and women was standing by a wall terminal. "There's your fan club. I'm sorry, Bey, but I couldn't stop it. Those are the Tycho City experts on regeneration methods. They want to hold a reception later in your honor, and nothing I've said has managed to dissuade them. You see the price of fame? Now, are you too tired, or shall we be nice to them while you're here?"

Chapter Five

THE EXPLANATORY SUPPLEMENT to the Ephemeris, 2190 Edition, lists the mean orbital inclination for the asteroids of the Egyptian Cluster as fifty eight degrees and forty-seven minutes

to the plane of the ecliptic. The Cluster's physical data are given at the very end of the reference section, a fair measure of its relative importance in the planetary scheme of things. All Cluster members have perihelion distances of about three hundred million kilometers, strongly supporting the idea of a common origin even though any clustering in a purely spatial sense has long since been dissipated. Pearl, with an almost circular orbit, crosses the ecliptic near the first point of Aries. Unfortunately, she was riding high, far south of that, when Wolf and Green finally set out.

"Nearly a hundred and thirty million kilometers, Bey," grumbled Green, hunched over the displays. "It will take more fuel to get us there than it would to take us to Neptune. I hope you're right in all those guesses."

Wolf was prowling restlessly through the ship, savoring the half-gee acceleration and inspecting everything as he went.

"You say it would take just as much fuel, Park, if Pearl were heading through the ecliptic right now. All we would save is a little time. If I'm wrong on the rest of it, we'll have wasted a few weeks each."

He paused by the radiation-shielded enclosure, eyeing it speculatively.

"It's a pity that doesn't have a form-change tank inside it," he went on. "This ship is plenty big enough to carry the equipment, if there were a suitable tank."

Green looked up briefly. "Remember, Bey, C-forms are still illegal here."

"I know. I was just thinking that we could really use one now, to slow down our metabolisms a few times. The Timeset form would do us nicely. How's the fuel supply look? Any prob-

lem?"

"No. We could do this twice if we had to. I told the provisioners that we might want to do some unusual out-of-ecliptic maneuvers during the trip. They gave us the biggest reserves the ship can hold."

Green finished his final checking of the trajectory, and straightened up. He looked at Wolf, who was still eyeing the closed compartment.

"Eyes off, Bey. You know the USF is ultra-cautious on the use of C-form experiments. Really, you can't blame us. People are precious out here. We don't have a few billion to spare, the way that you do down on Earth. We'll let you do the wild experiments. It will be a few years before we're ready to play with the form Capman developed in Project Timeset. Meanwhile, we've got our own methods. Did you take a good look yet at the sleeping quarters?"

"A quick look. They're tolerable. I was going there next, to look at a few bits of equipment that I didn't recognize. The place looked very cluttered. Why not use one compartment, and save on space?"

"That's what I mean, Bey." Green switched off the display, and swung the seat around. The leg-room at the trajectory monitor had been meant for someone two feet shorter. He stretched his long limbs straight out in front of him.

"You see," he went on, "back on Earth you've been forced to develop methods that let people live on top of each other, millions of you where naturally there should only be thousands. Well, we have a different problem here in the USF. We have a lot of space, and not many people, but we've still had to worry about the situation where a small number of people live for a long time in very

close contact—in a ship, or a mining colony, or an Outer System settlement. It's even worse than Earth, because there's no chance to vary the company you keep. You have to be able to live for months or years, without murdering each other."

Green swivelled his chair around to face Wolf, and looked at him with a strange expression. "Bey, answer me honestly. Just what do you think of me?"

Wolf, puzzled by the sudden change in subject, pulled up in mid-prowl. He looked at Green thoughtfully for a moment before he replied. "I think I know where you're heading, Park, but I'll play the game. An honest answer, eh? All right. You're good-natured. You're a bit of a worrier. You're not stupid—in fact, you're pretty shrewd—but you're also a little bit lazy. You bore easily, and you hate things that are too theoretical and abstract for your taste. We're off to a devil of a beginning here for a long trip together, but you did ask me."

"Right." Green sniffed. "I have trouble with that evaluation—it all rings much too true. Now, let me tell you what you're like. You're as smart as Satan, but you're a bit of a cold fish, and that sometimes throws off your judgment when it comes to people. In fact, you prefer ideas to people. You really love puzzles. You're stubborn, too. Once you get started on something, there's no way of shaking you off it. You're obsessive—but not about the usual human frailties. I'll hazard a guess, but I suspect that you've never formed a permanent link of any kind with either man or woman."

Bey had winced at the accuracy of some of the comments, but he was smiling at the end.

"Park, I didn't realize that you knew me so well—better in some ways than I know myself. So what's the punch-line? I presume that you are not proposing that we spend the next few weeks exchanging character assessments. If so, I'm not impressed with your USF ideas on the way to pass the time on a long trip."

Green stood up carefully, looking with annoyance at the low ceiling. "Not at all. Here, Bey, follow me." He started forward, stooped over. "This ship wasn't built for somebody my size. You should have no trouble, but watch your head anyway. I want to show you a few features of this ship that you weren't aware of on your first inspection. We just exchanged character comments, Bey, and we weren't complimentary. But we're still behaving in a civilized way towards each other—even though I'm sure neither one of us greatly enjoys having some of our defects pointed out, even though we know them well enough for ourselves."

"Let me assure you, though, what would happen if you and I were to be cooped up together for six months or a year, with no outside contacts and no one else to speak to without a half-hour light-time delay. You may not believe me, but the USF has a couple of hundred years experience on this one. Things would change. Little things about me that you don't like would seem to get bigger and bigger. After three months, I'd strike you as impossibly soft and stupid, incredibly big and clumsy, unendurably lazy. And in my eyes you'd be a cold monster, an untrustworthy, calculating madman. Do you find that hard to swallow?"

"Not really." Wolf followed Green through into the separate sleeping quarters, quite large but full of odd

pieces of equipment. "I've read about the effects of prolonged small-group contacts, particularly where the people are short of real work to do. Are you telling me that the USF have developed a solution to that?"

"Three solutions. In my personal opinion, none of them is as good as use of the C-forms. Here's the first."

Green reached up above one of the bunks and carefully took down a large padded headgear from its recessed storage area.

"See the contact points, here and here? You attach them to the skin, and put the cups over your eyes. It looks similar to the equipment they used in the early form-change work, doesn't it?"

"Close to it." Bey stepped forward and peered at the micro-electrodes in the interior of the cap. "It won't permit real bio-feedback, though—there's no adaptive control here."

"It's not intended for that. All it does is monitor purpose and wish, just the same as the form-change equipment. But instead of providing form-change feedback, it gives sensation feedback. It's connected to the computer, and that profiles a sensation response for you, maximized for relaxation and peace of mind."

"What!" Wolf was looking at the headgear in disgust. "Park, I don't know if you realize it, but you've just described a Dream Machine. They're illegal on Earth. Once you get hooked on one of these, it takes years of therapy to get you back to a normal life."

"I know. Don't get excited, Bey. This only gets used as a last resort, when somebody realizes that they're going over the edge mentally." Green's voice was grim. "Which would you rather do, Bey? Go under one of these when you start to crack,

and take a chance that they will get you back to normal—or be like Maniello on the first Iapetus Expedition, flaying his partner and using Parker's skin to re-cover the seat of the control chair? I'm telling you, the ship environment does funny things to people. Are you beginning to see why there's more to flying the System than a pilot's license?"

Wolf was looking chastened. "Sorry, Park. One of the problems of living down on Earth—we tend to get the idea that the USF is still a bit backward. For some things, it's just the other way round. What else have you worked out here to help you keep sane?"

"These others are the ones that we prefer to use. The first one I showed you is strictly for desperate cases." Green pulled a large, blue plastic cover, shaped like a man, from a panel under the bunk. "This one is an inferior version of a Timeset C-form. It's called a hibernator. We inject a combination of drugs to lower body temperature. It kills you, if you want to sound melodramatic about it. The suit holds you in a stable condition at about five degrees above freezing. The effective rate of aging is about a quarter of normal. You can go into it for about a week at a time, then you have to be revived. The suit does that automatically, too. See the monitors on the inside? After four or five days to get the muscle tone back up, you can go under again."

"I don't like the sound of that. You lose a week out of four, completely, while you're in there. Why not use a cryo-womb, and make it really cold?"

Green shrugged. "This is safer. The fail-rate on cryo-revivals is up near two percent."

"More like one percent, with the latest systems."

"All right, one percent. This thing is just about fool-proof. I admit, it's the poor man's version of a Timeset C-form. I expect we'll be using that in a few years. Meanwhile . . ." Green shrugged.

Bey slid open the suit fasteners and looked at the array of sensors running along the whole inside. "Any reason why we shouldn't both use it on this trip? We could cut the subjective time down more if we were both under at once."

Green coughed. "Well, when I said just about fool-proof, I only meant that. I would rather that we weren't both under at once. Once in every few thousand times, there's a problem with the revivification process. It's nice to have somebody who's awake, waiting around to see if the suit does its job properly, and helping out if it doesn't. With both of us under, there's a very small chance that we'd find ourselves on a much longer trajectory than we're planning. Unless we apply the correct thrusts when we get to Pearl, we'll drop back into the Solar System in about seven hundred thousand years. I'd rather not rely on whoever is around at that time to come along and get us out of our suits."

Wolf looked at him closely and decided that Green was only half-joking. He looked at the suit, then began to fold it up. "What else do you have? So far I'm not too enthusiastic."

Green shrugged. "I told you, none of these methods are as good as a working C-form." He reached up again into the recess above the bunk and pulled down another helmet, this one smaller and lighter than the first. "This has similar connections to your 'Dream Machine', but it has a different working principle."

He turned it over. "See these leads? They link to the computer, and

also to the helmet in the other sleeping area. It still provides a sensation feedback, but in this one it's modulated by what the other person in the system is thinking and dreaming. The computer is programmed to modify those thoughts, before the feedback, to make our impressions of each other more favorable. All the time that we have the helmets on, we are sharing each other's thoughts and emotions. It would be much harder for us—so the theory goes—to develop any hatred for each other. It would almost be like hating yourself."

"I do that anyway, sometimes." Wolf was looking at the helmet with a good deal of distaste. "Speaking personally, Park, I find this device disgusting. It's no reflection on you, but I don't like the idea of somebody else sneaking in on my dreams. Some of the things I think just don't bear to be shared. Whoever thought up this one had a diseased mind—worse than mine."

Green nodded sympathetically. "It's odd that you should say that. Most people don't seem to mind the idea, but I have an instinctive dislike of it. It must feel like a two-way computerized seduction, creeping into each other's hidden territories. Anyway, which one do you want to use on this trip—or would you rather not try any of them?"

Bey looked at the helmet he was holding. "It's not much of a choice, is it? I suppose the hibernator is least bad. I don't mind sleeping for a week, provided we don't feel too bad afterwards."

"All right. We'll take it in turns to go under. Really, though, for this trip we don't have to use these things at all. They're not even recommended for trips under a month, and they don't become mandatory until you're

going to be six months between stops. Want to skip it completely?"

"Let's see if we get bored at all. You know, Park, I wish the USF was more broad-minded about form-change work. For a start, I feel sure I could set up a system that would work with somebody in the hibernator, and use bio-feedback to keep good muscle tone. That has to be easy. In fact"—Bey was beginning to sound enthusiastic—"I'll be willing to make a bet with you. I'll wager that I can take a Dream Machine helmet and a hibernator, and make a system from them that will do just what I said—and I'll have it finished before we get to Pearl. What's the capacity of the on-board computer?"

"Ten to the tenth directly-addressable. About a hundred times that as low-speed back-up."

"That's ample. Even if we don't find what I'm looking for, maybe we can take something back with us that will interest the USF."

Green looked at Bey warily, and shook his head. "Experiment as much as you like. There's a spare set of helmets and a spare hibernator. But I don't like that mad-scientist look in your eye. I'm telling you now, you don't have a volunteer as a test subject, if you think you have it working. When I hear you talk, I sometimes think you're as bad as Capman must be—for-change is the most important thing in the world to both of you." He was silent for a moment, then he sighed. "I only hope I still have a job when I get back. The USF Government doesn't take kindly to sudden extended absences, without a real explanation. But I'll tell you one thing, Bey, your obsession with Robert Capman seems to be infectious. I just can't wait to get to Pearl."

Chapter Six

MORE THAN ninety-nine percent of all the mass in the Solar System lies close to the plane of the ecliptic. Of the remainder, the Halo of kernels accounts for all but the tiniest fraction; and that Halo is at the very outer edge of the System, never visible from Earth or Moon with even the most powerful optical devices. For all practical purposes, Pearl and her sisters of the Egyptian Cluster swim in a totally empty void, deserted even by comparison with the sparse population of the Outer System.

The ship climbed steadily and laboriously up, away from the plane of the ecliptic. Finally, the parallax was sufficient to move the planets from their usual apparent positions. Mars, Earth, Venus and Jupiter all sat in constellations that were no part of the familiar Zodiac. Mercury was cowering close to the Sun. Saturn alone, swinging out at the far end of her orbit, seemed right as seen from the ship. Bey Wolf, picking out their positions through a viewport, wondered idly who the astrologers would cope with such a situation. Mars seemed to be in the House of Andromeda, and Venus in the House of Cygnus. It would take an unusually talented practitioner to interpret those relationships, and cast a horoscope for the success of this enterprise.

Bey turned the telescope again to scan the sky ahead of them, seeking any point of light that could be separated from the unmoving star field. It was no good. Even though the computer told him exactly where to look, and assured him that rendezvous would be in less than an hour, he could see nothing. He was tempted to turn on the electronic magnifiers, but

that was cheating as he had been playing the game.

"Any sign of her yet?" said Green, emerging from the sleeping area.

"No. We should be pretty close, but I can't see anything. Did you pick up your newscast?"

"Just finished watching it. It was a terrible picture, though, the signal-to-noise ratio was so bad. I don't understand how they can pick up those broadcasts all the way out to Uranus, with a receiving antenna no bigger than the one we have. We're only a tenth of that distance, but the signals seems to be right at the limit of reception."

"We're just picking up one of the power side lobes, Park. Nearly all the real power in the signal is beamed out along the main lobe, in the ecliptic. It's surprising in a way that we can pick up anything at all here. Anyway, what's in the news?"

"What I heard didn't sound good." Green's voice was worried, and he didn't want to meet Bey's eye. "It's Earth again. All the social indicators are still pointing down. I know old Dolmetsch is a prize pessimist, but I've never heard him sound so bleak before. He was being interviewed in Lisbon, and he's projecting everything going to hell before the General Coordinators can damp out the swings in the social parameters. He looked as though he was going to say more, and tell us the swings couldn't be damped at all, but the interview was cut off short at that point."

Wolf looked out of the viewing port, back to the brilliant blue-white point of light that was Earth. "It's hard to make yourself accept that there are fourteen billion people back there on that little speck. Did you catch any hard facts?"

"Some—but I'm sure they are cen-

soring heavily. Tremendous riots in South America, with the biggest death rate in Argentina. Power black-outs all over. Hints at something really bad in China. It sounded like widespread cannibalism. The General Coordinators are even talking of putting a kernel down onto Earth's surface; that gives us a good idea how bad the energy shortage must be."

"It does." Bey looked back at Earth, as though expecting to see it wink out of existence like a snuffed candle. "If they lost the shields on a kernel, it would be worse than any bomb in the stockpile. All the Kerr-Newman holes they're using in kernels radiate at better than fifty gigawatts. They'd be mad to take one down to the surface."

"Mad, or desperate. Maybe Dolmetsch has a right to be a pessimist—after all, he invented the whole business. The famine in South Africa is getting worse, too. They are talking now about cutting off all supplies there, and using them where people may be salvageable."

Green had joined Bey Wolf at the port, and they were gazing together at the star patterns, each seeing his own personal specter. They stood in silence for several minutes, until Green frowned, and looked about him.

"Bey, we're turning. It's not enough to feel yet, but look, part of the star field seems to be rotating. The computer must be tuning us for final rendezvous. Do you remember the setting?"

Bey nodded. "One kilometer surface distance, exact velocity match. I thought we ought to take a look from close in before we get any ideas about a landing on Pearl." He swung the viewer into position and switched on the screen.

"Well, there she is, Park. We've come a long way to see that."

The asteroid appeared on the screen as a small, perfect circle. It glowed softly, but not with the highlights of a reflection from a polished glass surface. Instead, there was a diffuse, uniform glow, a pearly gleam with a hint of green in the white. Green frowned, and turned the gain up higher. The image seemed to swell on the screen.

"Bey, that's not the way I expected it to look. It's scattering and absorbing a lot more light than it should. It really looks like a pearl, not like a hollow glass ball. Why isn't it just reflecting the sunlight?"

"I don't know, Park. Look at the left hand side, there. See it? There's something different there, a dark spot."

The image on the screen was still growing steadily larger and clearer as the ship neared rendezvous. It was difficult for Wolf and Green to suppress their impatience as the asteroid's milky surface slowly became more visible. Soon it was obvious that the dark spot was more than a patch of different reflectance, and there were other faint mottlings and markings on the smooth surface, tinged with a cloudy green.

"It's some kind of a pit, Bey." Green hunched closer to the screen. "Maybe a tunnel. See where it angles down into the surface? I don't remember anything like that in any of the descriptions of Pearl."

Bey was nodding his head in satisfaction.

"It's not a natural formation. Somebody's been doing heavy engineering there. See how sharp those edges are? I'll bet that was cut with a big materials laser. Park, there's no way that Capman—or anybody else—could

have done all that without a lot of assistance and equipment. You know what that means? Somebody in the USF has been helping him—and whoever it was has lots of resources to play with."

The computer interrupted his final words with a soft whistle. The orbit match was complete. They stared hard at the nearby asteroid. From a distance of one kilometer, Pearl filled a quarter of the sky. The whole surface shone with a pale, satiny gleam. It was smooth and unbroken, without any irregularity except for the exact, circular hole, thirty meters in diameter, that showed its black disk near the left side of the image.

They studied it in silence for a few minutes. Finally Bey moved over to the computer console.

"It's no good, Park," he said. "We can't learn much from here. There's nothing to see on the surface. We have to get a look at the inside. I'll bet that tunnel runs right through to the interior. We'll need suits."

"Both of us?"

"Unless you're willing to stay behind here. I know I didn't come all this way to watch. The computer has everything under control on the ship. I think it's safe enough to go in close and jump the gap wearing our suits. Take us in to fifty meters, and let's go."

The two men, fully suited, drifted across from ship to surface. The gravity of Pearl was too small to be noticed. They hovered a few feet from the planetoid and looked at it more closely. It was clear why Pearl shone so softly. Through the many millenia since Loge's explosion, the impact of micrometeorites had pitted the surface, to develop a matte, frosted coating that caught and diffused the light from the distant Sun. Pure white al-

terminated with greenish clouds, in a patchwork over the sphere. The two men drifted slowly towards the tunnel. Near the edge, Wolf shone a hand torch downwards. Deep channels had been scored in the smooth glass by heavy equipment. The hole narrowed as it descended, ending about fifteen meters down in a smooth plate of black metal.

Wolf whistled to himself, the sound thin and eerie over the suit radios. "That disposes of the idea that nobody's allowed to land on Pearl. Why would anybody put in an air-lock down there, if it's just an empty shell?" He looked down the steep-sided hole. "Ready to go down, Park? All we need now is the White Rabbit."

They floated together downwards to the big portal, untagged the outer door and went inside. Green took hold of the port, then hesitated for a moment.

"Should I close it, Bey? We don't know what we may be getting into. There could be anything inside."

"I don't see that we have much choice. Either we go in, or we go back. I'm expecting to find Capman behind that door, and John Larsen with him. If you want to stand guard outside, that's fine—but I'm going in."

Green did not answer, but he pulled the outer door firmly shut and dogged it with the clamps. There was at once a hissing of air.

"Don't assume that it will be breathable," warned Wolf, as the inner door swung open. "John should be here, and the atmosphere may be his idea of nice fresh air."

Green snorted. "Bey, give a USF man some credit. Anybody who grew up off-Earth would no more try and breathe untested air than want to live

back down on Earth and breathe your soup. Look at the second display panel in the helmet inset. It's registering 6-S. That means it's safe to breathe, and a little less than half Earth-normal for pressure. All the same, I'm going to keep my suit closed. I suggest you should do the same."

The inner door was slowly irising open. A pale green light filtered into the lock from the interior of the planetoid. With the port open to its full thirty meter diameter, the whole of the inside of Pearl became visible. In complete silence, the two men drifted forward together, looking about them.

The inner wall of Pearl had a smooth, shiny finish that had been missing on the exterior. No meteorites had marred its perfection. The inner surface was a perfect globe, a little more than a mile in diameter. In the center of the vast, arching chamber, tethered to the wall by long, glittering struts and cables, hung two great metal structures. The nearer was itself another bright sphere of steel or aluminum. Bey, eyeing it thoughtfully, wondered at the source of the materials that had been used in its construction. Certainly they had not come from Pearl itself. Considering the energy needed to transport materials from the main system, it seemed certain that the ball must have been built from metals mined on one of the sister asteroids of the Egyptian Cluster. Bey estimated that the sphere was a hundred meters across. A long tubular cable led from the port where they had entered to another lock on the sphere's smooth face.

The second structure could only be a ship. That made no sense. Bey looked around him again. There ap-

peared to be no way that the vessel, forty meters across at the widest point, could have reached the interior of Pearl—or, once there, could ever leave it. His eyes followed the guide cables that led from the ship to a slightly darker section of the inner wall, directly opposite to the point where they had entered. It had to be a concealed exit. Other cables, running to empty areas in the interior, hinted at the sometime presence of other ships, moored to the inner surface in the same way.

The surface of Pearl, with its wall of translucent glass, provided an efficient conversion of incident solar radiation. The suit thermometers indicated an ambient temperature quite comfortable for human habitation. The inside was lit with the faint sunlight that had been transmitted through the outer walls and suffused about the interior. There were no shadows, except those thrown by the torches that Wolf and Green were carrying.

At first, Pearl seemed completely silent, a dead world. As their ears adjusted, Wolf and Green became aware of a deep, muffled pulsing, felt more than heard, filling the interior. It came from the metal sphere at the center of the asteroid, regular and slow, like the working of air or nutrient circulators, or the beating of a vast heart. Nowhere, through the great space of the central bubble, was there any other sound or sign of life.

Park Green finally broke the spell. "I'm beginning to think I don't know anything at all about the USF. There's no way this place can exist. That ship up there must be unregistered, and if Capman came here in it I can't even guess where he could have started out from. Not Tycho, that's for sure."

Wolf grunted his agreement. His instincts told him that something was

very wrong. He had come to Pearl, convinced that he would find Capman and Larsen there. If that were true, surely there should be some sign of their presence? He looked again at the metal sphere ahead of them. Without speaking, both men moved to the great hollow cable that led there from the entry port.

As they started along it, the sheer size of Pearl came home to Bey. The far wall looked close at hand, but the vaulted interior of the asteroid could easily contain tens of millions of Earth dwelling-units. They progressed along the cable until their entry lock behind them had shrunk to a small black dot. They both felt more comfortable when they had finally reached the sphere and entered the lock on its shining face.

The first rooms were clearly living quarters. The furnishings were simple, but there was expensive automated equipment to handle all routine chores. Bey, seeing the food delivery system, realized how long it had been since they had eaten. He looked at Green.

"What do you think, Park? Assuming that's in good working order, are you ready to risk the air in here?"

Green was looking hungrily at the dials of the robochef. He nodded. "I think we're safe enough, as long as we don't go through any air locks. This area is a standard USF automat life-support, with a few VIP luxuries thrown in. Take a look at that menu. I'll bet you don't eat like that back on poor old Earth."

Unsuited, they felt a good deal of the tension evaporate. There was still no sign of life, and by the time that they were ready to continue their exploration, Bey had become convinced that the whole sphere was uninhabited. After the living quarters

came three rooms crammed with monitors and control consoles, exactly like the general control room for a form-change lab—similar, and yet dissimilar. It was bigger than anything that Bey had ever seen, bigger even than the research center facility at BEC.

"The tanks should be behind that wall," he said, explaining to Park Green what they had found. "But I don't think we'll find John there. Somewhere, I missed the point. I was sure I was right, then—"

He shrugged, and looked about him. Four years earlier, he thought he knew what Capman was doing—only to find that he had been out-thought every step of the way. It could happen twice. Capman *expected* him to unravel the skein that led to Pearl. If necessary, John Larsen could provide a little prompting, since it was clear that he had been in constant communication with Capman, ever since the change to a Logian form. Once he knew that Bey was on the way, Larsen had promptly disappeared.

It all sounded so logical—but so unlikely. Bey wasn't sure that he could explain to Park Green just how they had been guided here like a couple of puppets.

While Wolf stood there in silence, Green had been looking closely at the control panel.

"Bey, I know I'm no expert on this stuff, but look at the read-outs. They all seem to be from one tank. Could all these be from one form-change station?"

Wolf came forward also. He studied the panels for a few seconds, his face puzzled. "It looks like it, I admit. But there are far too many monitors for one subject. There has to be three hundred of them. I've never seen

anything nearly as complicated for one experiment. I wonder if it could be . . ."

He stood, unwilling to state his own belief.

"You and your companion are quite correct, Mr. Wolf," said the speaker grille above the console. "This is indeed all one experiment."

Chapter Seven

"**C**APMAN?" Wolf swung around swiftly to face the grille.

"No, I am not Robert Capman. I am an old friend of his. In fact"—there was a hint of amusement in the light, musical tone—"I could fairly say that I'm a very old friend. Welcome to Pearl. I have heard a great deal about you, from both Robert Capman and John Larsen."

Green was looking around him in confusion. "Where are you? The only way out of here looks as though it leads to the tanks."

"Correct. I am in the tank area. It is quite safe for you to proceed through at the moment. I am maintaining the atmosphere at the same level as in the rest of Pearl."

"Should we come through?" asked Wolf.

"Come through by all means, but be ready for a shock. You perhaps consider that you are past surprise, Mr. Wolf, but I am not sure that the same is true for Mr. Green."

"But where are Capman and Larsen?"

"Far from here. Mr. Wolf, the conversion of John Larsen to an alien form was completely unexpected. It added a new dimension to an activity that was already vastly complex. But it also provided great benefits. Part of the explanation of our activities is not mine to give, and you must hear it

from Capman. Part, however, I can tell you. Come through into the tank."

Wolf and Green looked at each other, and finally Bey shrugged. "I'll go first. I don't think there will be any danger. I don't know what we're going to see, but I've had a close look at most things in the years with Form Control."

The chamber that they entered was enormous. It occupied at least half of the whole metal sphere. Bey looked around him in vain for the familiar tank fittings. At first he could see nothing that he recognized. Then, suddenly, what he was looking at made sense. He gasped. It *was* a tank, but the proportions on the service modules were unbelievable. Nutrient feeds and circulators were massive pipes, each two meters in diameter, and the neural connectors were heavy clusters of wave guides and thick fiber optic bundles. Bey looked around for the origin of the voice, but it was all a complex series of interlocking vats, each one large enough to hold several men. He could see nothing to tell him where to focus his attention.

"Where are you?" he said at last. "Are you in one of the vats?"

"Yes and no." The voice now seemed to come from all sides, and again there was a hint of detached amusement in the tone. "I am in *all* the vats, Mr. Wolf. This experiment has been going on here for a long time. My total body mass must be well above a hundred tons by now, but of course it is distributed over a large volume."

Green, mouth gaping open, was goggling around him like a startled frog. Bey felt that his own expression must be much the same. "Are you human, or some kind of biological computer?" he said at last.

"A good question, indeed, and one that has exercised my mind more than a little over the past few years. I am tempted to say simply, yes."

"You're both? But then where is your brain located?" asked Green.

"The organic part is in the large tank straight in front of you, at the rear of the chamber. You can pick it out easily by the number of sensor leads that feed into it. The inorganic part—the computer—is in a distributed network extending through most of the sphere. As you will gather, Robert Capman has shown that the idea of man-machine interaction can go a good deal further than a computational implant."

"But how do you . . . ?" Wolf paused. His mind was seeing a hundred new possibilities, and a hundred new problems to go along with them.

"If there is no one else here," he went on, "how can you get the nutrient supply that you need? And how can you ever change back? I assume that you began as a human form." Another disturbing possibility suddenly suggested itself. "How did you get to be like this? Was it voluntary, or were you forced to take this form?"

"Questions, questions." The voice sighed. "Some of them, I have promised not to answer. Their replies, if you want them, must come from Robert Capman himself. One thing I can guarantee, a reverse form-change would be very difficult. On the other hand, by the time that I expect to be interested in such a thing, I feel sure that the capability will be well-established—perhaps even forgotten. Enough of that. If you would please turn around . . ."

The voice, for all its bizarre origin, sounded cheerful and rational, even amused. As Wolf and Green turned to

look behind them, a screen flashed into color on the nearer wall of the tank.

"How do I obtain my nutrients, you ask? Very efficiently. My whole life-support system is completely self-contained. Look at the screen, and let me take you on a brief tour of Pearl. We are leaving now, and heading out to the inner surface."

The screen showed the output of a mobile vidicon that was moving steadily out along one of the connecting cables that led to the inside wall of the asteroid. Seen close up, it was clear that many of the cables were much more than simple supporting members for the sphere. They included tubes, communication guides, and flexible connection points onto which other cables could easily be joined. As the vidicon came closer to the wall, it was again obvious that the image on the screen showed something more complex than the smooth, glassy surface that appeared from a distance. Some patches were lighter than the background, and transmitted a light distinctly greener in color.

"Algal tanks!" said Park Green suddenly. "Just like the ones in the Liberation Colonies. But these must be cut into the surface of Pearl. See how green the light looks."

"Quite right," said the disembodied voice. "You can see what a great convenience it is to have an asteroid that was almost designed by Nature for our purpose. The algae are the source of both my air and my nutrients. We are one closed system, including all the circulation equipment. The thermal gradients do all the work. It is no longer necessary for Capman—or anyone else—to be here to provide services to me. That control console you saw outside is no longer needed here. In fact, I control it myself.

through the computer network. The whole of Pearl is a single, self-contained environment."

Long experience had inured Bey to just about every conceivable form, but Park Green was much less comfortable with what he was seeing and hearing. He seemed horrified by the implications of the conversation.

"Capman did this to you, did he?" he finally burst out. "Surely he knew what he was creating. You can't move from here, you're tied to Pearl, you can't do a reverse form-change. You don't even have anyone here to talk to or relate to. You, whatever you once were, don't you see what he's done to you? Didn't you know he's a murderer? How can you stand it?"

"Still more questions." For the first time, the voice sounded irritated. "My name, for what it matters, is Mestel. I need pity from no one. For your other remarks, perhaps I should point out that you are completely captive in your body, at least as much as I am in mine. Who is not? And I possess a degree of control over my own movement, care and protection that you certainly are lacking. How can you stand it?"

"Movement?" Bey picked up on the word. "You mean vicarious movement, through the remote sensors?"

"No—though I have too. I mean physical movement, as a whole. Wait and see, Mr. Wolf. I admit that I am bound to Pearl for an indefinite period. But why should that be considered a disadvantage? If I can believe the newscasts that I have picked up in the past few weeks, Pearl may soon be the only place left with a decent level of civilization. Or has old Laszlo become even more of a pessimist than usual?

"Perhaps that is enough talk." Mestel's voice became sharper in tone. "I

suppose that I do miss the opportunity for conversations without light-time delays. Now I have another duty to perform. Your arrival here was expected, but it was not clear *when* you might come, or how many of you there would be. I thought you would arrive alone, Mr. Wolf. Robert Capman believed that Mr. Green would arrive also, and John Larsen insisted on it." A curious amplified noise came from the speaker. Mestel had sniffed. "Whatever it is that makes up the Logian form, there is formidable intellect there. With all the computer assistance that is built into me, I expect to out-think anyone except Capman. Others abide the question, but he is outside normal experience. Now it seems that Larsen can think rings round both of us."

"That's my feeling, too," said Bey. "I knew John very well before the change, and it's not being unkind to say that he was no great intellect. Now, he's something special. Robert Capman has always been something special."

"I know you think that. Now let me ask a question that you alone can answer. You have pursued Capman steadily since your first meeting, down the nights and down the days, down the arches of the years. If you wish to pursue him further, there will now be a significant risk to you. You will also be away from Earth for many months. Do you want to proceed on those terms?"

"Wait a minute," said Green. "What about me? I've been in on this from the beginning, at least as far as the Logian forms are concerned. I'm not going to be left out of things now."

"You will not be left out, Mr. Green. You and I, for our sins, will be embarking on a different mission.

It is a crucial and a demanding one, but it does not include a meeting with Robert Capman. That encounter is not necessary for us. But there are reasons why Behrooz Wolf needs one more meeting with Larsen and Capman.

Wolf was listening very closely. He was intrigued by the intonation in Mestel's voice, and by the slightly old-fashioned and formal manner of phrasing and address. He looked around him again at the tank. Apart from the sheer size, it showed an individual taste in the layout, a little different from the standard arrangement.

"Mestel," he said at last. "Is the layout of this place your work, or did Capman do it for you?"

"Capman and a work crew arranged for the physical labor. That was before I had full control of the remote handling equipment, so I still needed help. Now, I could do the whole thing with my waldos. I did all the specifications, though—Robert never did care at all what his surroundings looked like, he lived inside his head."

Wolf was nodding in satisfaction. "Then I'd like to ask you a couple more questions. How old are you, and are you male or female?"

Green looked at Wolf in astonishment. But Mestel was laughing heartily, a musical gale of sound that swept out of a hundred speakers inside the great tank.

"Male or female? Come, Mr. Wolf, is it not apparent that the question is now purely academic? I presume you mean, was my original form male or female? Full marks. My name is Betha Mestel, and I was for many years a female—but never. I'm glad to say, a lady. Robert Capman told me that you have an unmatched talent for reading through an exterior

form. I see he did not exaggerate. Can you go further? On the basis of what I have already said, would you like to attempt further deduction?"

Bey was nodding thoughtfully, dark eyes hooded by the half-closed lids. "Betha is not a name much used now. It had a big vogue a hundred and twenty years ago, and you said you are an old friend of Capman." He paused. "I think I am beginning to see a whole lot of things that should have been obvious to me a long time ago. Is it possible that you—?"

"Never, as they said in the old days, ask a woman her age." Beneath the flirtatious tone of Betha Mestel's voice there was an undercurrent that was anything but casual. "As you surmise, the answer would take us far afield. I must return to my question, and ask again: Mr. Wolf, are you willing to take the risk that a meeting with Robert Capman would entail?"

"Definitely." Wolf's voice was firm, his resolution increased by the implications of Betha Mestel's words. "How do I get to him?"

Wolf paused. The far side of the room was suddenly indistinct, a blur of color in front of his eyes.

"I will get you to him. Mr. Larsen and I will not go with you, we have our own duties to perform, back in the Inner System." The voice was fainter, further away. "Let me apologize to you for what is about to happen. There are good reasons for this, also. Relax, both of you."

Neither Park Green nor Bey Wolf had heard Mestel's final sentence. Two of the handling waldos came forward, and gently carried the two unconscious forms back towards the control room.

ONE HUNDRED MILLION kilometers above the ecliptic, there is an isolation—

that is more complete than anything found in the plane of the planets. There were no observers to watch Pearl, as the asteroid moved steadily on her three-year circuit around the Sun. The nearest inhabited object was Horus, with its fifty-man mining outpost. That group was far too busy to spend any of their time heavens-watching. In any case, at thirty million kilometers distance, Pearl was at the resolution limit of their best telescopes.

No one saw the great lock in the side of Pearl iris open, and the ship emerge from it, like a small, bright minnow darting from the shelter of a hollow rock. The ship fell freely for a while, until it was a safe distance from the asteroid. Then the fusion drive went on. The ship began to move out and down, dipping towards the ecliptic on a trajectory that headed further from the Sun. The single passenger knew nothing of the motion. He was cocooned deep within the form-change tank at the ship's center.

Soon afterwards, the mechanical handlers emerged from Pearl's smaller lock. They went across to the ship that Bey Wolf and Park Green had arrived in. It had remained close to Pearl's surface, with the auxiliary thrusters making the tiny adjustments necessary to hold it at a precise fifty meters from the asteroid. The handlers moved it gently towards the lock, electronically over-riding the command sequence that held the ship's position. Once moved inside, the ship was secured firmly by supporting cables that threaded the faintly-lit interior.

The currents began to flow through superconducting struts and cables. The interior configuration of Pearl became rigid, constrained by the intense electromagnetic fields within. When

the fields had stabilized, the main lock opened again, to reveal a power kernel, shielded and held in position by the same powerful controls.

The propulsion unit went on. Plasma was injected into the ergosphere of the kernel, picked up energy, and emerged as a highly relativistic particle stream. Little by little, the orbit of Pearl responded to the continuing thrust. It began to change, to shift inclination and semi-major axis.

Betha Mestel was moving house.

Chapter Eight

IT HAD BEEN added to the air of the room. Asfanil, probably, judging from the lack of general side effects. There was no headache or uneasiness in the stomach. And yet . . .

Bey Wolf frowned. Something didn't feel quite right. He ran his tongue cautiously over his upper lip. There was a faint taste there. No, not a taste, a feeling, like a slight stickiness. He breathed deeper, and the air felt oddly different, hot in his lungs. At last, he ventured to open his eyes.

—and was suddenly completely awake. He was still sitting in the form-change tank, but he knew from long experience that the process had already run its course. The change was complete. The monitors were still, the electrodes inactive against his skin.

Full of a sudden alarming notion, Bey reached out a hand in front of him. He looked at it closely. Normal, except for the color, and that was an effect of the lighting. He breathed again, half relief, half disappointment, and looked up at the odd, blue-tinted lamps above his head.

He was no longer on Pearl. That was obvious as soon as he emerged

from the tank. He was on board a ship. It could be the vessel they had seen in Pearl's interior, but the backdrop outside the viewports was of open space, not the gleaming inner surface of the asteroid.

Not on Pearl, and form-changed. But to what?

Bey inventoried his body, and could find no changes there. He sat down by the viewport to think things through. His body was the same, but his senses felt subtly different. The noise of the ship's engines was wrong, a high-pitched scream of power up at the limit of his hearing. It sounded quite different from the familiar drone of a fusion drive. He looked aft. The equipment was conventional enough, and he could not believe that Capman and Betha Mestel had invented a completely new propulsion system.

Wolf stared out of the port, his face vacant with concentration. Where was he? Where was Pearl, Betha Mestel, Park Green?

He switched on the other viewing screens, and tried to gain an idea of the direction in which he was being carried. The Sun was the first reference point. It lay far astern, much reduced in size and brilliance. Its color was changed to a peculiarly intense violet-blue. He peered at it in perplexity. Was it the Sun? It seemed more like a strange star, alien and remote.

Bey looked for other information. Through one of the side screens, a brilliant planet was visible, quite close to the ship. Surely that had to be Jupiter—but it too was the wrong color. The ship was swinging past it, using the planet's gravitational field to pick up free momentum, and the planet itself was only a few million kilometers away. Bey turned up the magnification of the screen with

strangely uncoordinated hands, focusing on the satellites that orbited the brilliant primary.

It was Jupiter all right. There were the four Galilean satellites, all clearly visible, and there was the Red Spot, itself changed to a peculiar lime-green color. He watched in silence for a few minutes. Io was close to occultation by the great mass of the planet. The satellite's angular separation from the main body was steadily decreasing as he looked on. Just before Io vanished, Bey sat up straight in his seat. He looked again at the Sun, and at the lamps inside the ship. Suddenly, he understood exactly what had happened. He swore to himself. It should have been obvious to him long before. He looked at the plotter set by the display screen. He had a suspicion what he would find as the endpoint of the calculated trajectory.

FAR SIDE WATCH tended to be quiet. No parties, no people, not even VIP inspections to provide an irritating relief from tedium. Tem Grad and Alfeo Masti had pulled it three times in four months, and they were beginning to suspect that the random duty selector was loaded against them. Once the big antennae had been recalibrated at the beginning of the residence period, there was nothing to do for the next fourteen days, except an occasional personal message from a friend in the Outer System when, as now, Nearside was facing the Sun.

They had run through the usual pastimes left by former duty officers, the first couple of times they had been assigned to Farside. Those were few enough, and not too enthralling at that. Now they had retired to opposite ends of the main monitor room, Tem to listen to music and Alfeo to play bridge with the computer. Even

that wasn't much fun as far as Alfeo was concerned. He was getting very annoyed with the machine. It was supposed to adjust its game, so that the three hands that it was playing represented players with roughly Alfeo's level of skill. Instead, he was being slaughtered, and he couldn't even curse his partner with any pleasure. After two hours, he was looking darkly at the screen and wondering if the random hands that the computer was supposed to be generating were as open to suspicion as the selection procedure for Farside Watch assignments.

It was a surprise and a positive relief when the communications monitor began its soft call for attention. A ship was approaching Farside, asking for trajectory confirmation as it neared the Moon. At this time of the month, it had to be coming from Mars or beyond. Alfeo hit the button that cancelled his latest losing hand and activated the display screen. The computer uttered a low whir of changing peripherals, like a mutter of protest at Alfeo's poor sportsmanship for quitting when he was behind.

It took a few seconds to get a visual fix on the ship. The computer took range-rate information from the Doppler shift in the communications band signals, used that to compute a relative position, and finally pointed the biggest telescope to line up on the approaching ship.

When the image of a gleaming white sphere finally appeared on the screen in front of him, Alfeo looked at it with interest. It didn't seem to be one of the usual freighters. He glanced automatically at the display beneath the image giving the ship's distance. Then he frowned, gasped, and looked again at the image on the screen.

"Tem," he said urgently. "Get over here. We've got a ship approaching, and according to these read-outs she's a real monster. The screen shows her subtending over six seconds of arc at the station, and she's still more than sixty thousand kilometers out. See if you can find her in the Register."

Tem Grad unhurriedly uncoiled his long frame from the chair and sauntered over to the screen.

"You're star-sick, Alf. Six seconds at sixty kay would mean something a couple of thousand meters across. The biggest ship in Lloyd's Register is only three hundred meters. You must be reading the display wrong."

Alfeo did not deign to answer. He merely jerked his thumb at the screen by his side. Grad looked at it, then at the numerical displays. He looked again. His expression changed abruptly.

"See if she has a voice channel active, Alf. I think we may have an alien out there."

His voice was excited. Earth, the USF, and the whole Solar System had been pulsing with rumor and talk of aliens, ever since the first guarded and cryptic announcements had come from the Office of Form Control on Earth regarding John Larsen's metamorphosis. Speculation had been wild. With so little being said officially, the news media had gone back to the stories of the Mariana Monsters, combing sources in Guam for anything suggestive.

As the voice and video link was completed, Tem hooked in the communicator channel. A chubby, boyish face suddenly appeared on the screen in front of them.

"Hey, I know him," said Alfeo. "I was in school with him, for tertiary vacuum survival. You remember, the courses over in Hipparchus. He's no

alien."

Tem gestured him to silence. The voice circuit had corrected for Doppler shift and was now tuned correctly to the sending frequency of the ship.

"This is *Pearl*, requesting approach trajectory approval and parking orbit assignment, Earth equatorial," said Green's holo. "Repeat, this is *Pearl*. Farside, please acknowledge signal and confirm orbit."

Alfeo threw in the send circuit, permitting the computer to provide a message acceptance and a video link of Alfeo and Tem as they worked at the console.

"Acceptance received," said Green, after a moment's pause. Then he blinked and leaned forward in his chair, obviously looking at his own screen. "Is that Alf—what was it?—Massey? What are you doing on Farside duty?"

"I'm not sure. Penance, maybe," said Alfeo. "And it's Masti, not Massey. And you're Park, right? Park Green. A better question is, what are you doing in that ship? She's not listed in Lloyd's, and she's very peculiar looking."

"Watch those comments, sonny," broke in a new voice on the circuit. "Remember, handsome is as handsome does. Look, you and Park can socialize later. We need the highest priority circuit you can give us to Laszlo Dolmetsch. Is he on Earth or on the Moon?"

Grad held back his questions, responding to the note of authority and urgency in the unknown voice.

"Last thing I heard, he was on Earth," he replied. "That was a week or so ago. I'll try and track him. Meanwhile, I'm giving you a slot that will take you to LEO, eight hundred kilometers perigee, zero inclination. I don't know if you'll be able to get

landing permission. With the emergency down there, we've got a ban on everything except top-priority traffic down to the surface."

"We heard that things are getting bad. The newscasts on the way in were full of it." The four-tenths of a second round-trip delay between *Pearl* and Farside Station was decreasing steadily as the ship flew closer on her lunar fly-by. "Anyway, there's no way that Betha could land on Earth. She's not right for it."

"What's the problem?" said Alfeo. "Need a special suit? They can fly one out to you from the Libration Colonies, if you're willing to wait a day for it. Where is Bertha, anyway?" He stared hard at the screen. "All we're picking up is a picture of you, Park."

"I'd need a special suit, all right," said Mestel. "But I'll guarantee they don't have one that would fit me. How are you doing on that circuit to Dolmetsch? Do you have it yet?"

Alfeo glanced across at the computer output. "We know just where he is now. He's down on Earth meeting with a group from the General Coordinators. I don't have the priority codes that will let me interrupt a session there. I can get a short message to him, that's about all. There's no way that I can give you a two-way unless he wants to initiate it from that end."

"Fine. Send him this message," said the invisible voice. "It's short enough. Tell him that it's Lungfish Project, Phase Two, calling."

"Lungfish Project," said Tem, keying in a second connection. "Right. But what about a message for him?"

"That's all you need. He'll be on the circuit fast, unless the shock knocks him flat."

"But who are you?" persisted Tem. His own curiosity was thoroughly

aroused. "Don't you even want to give him your name? You must be a friend of his."

"I was a friend of his long before you two were cutting teeth. But I haven't seen him for a long time, and I've changed a little since then. If you can send a video with the message, give him a shot of *Pearl*. There's no point in sending him the video signal that we're sending you."

"You mean give him a picture of the ship?" Alfeo looked dubious. "You don't look like any ship in the Register. I thought I knew every type, but there's nothing that's anything like your size and shape. What sort of drive units do you have? They must be something special."

"They're kernels," said Park Green, "with McAndrew plasma feeds. The same as the Titan freighters, but the bracing is all done internally, instead of externally. *Pearl* started out as a natural formation. It was an asteroid in the Egyptian Cluster."

The two men on Farside duty looked again at the image on the screen, then at each other.

"I guess that makes sense," said Tem Grad. "That way, Alf, she'd be in the natural feature listings, not in Lloyd's. Even so, I've never seen an asteroid that looked anything like that." He turned back to the screen. "You know, you should have applied for a re-classification, the way they did when they put drives on *Icarus* for the solar scoop. You should be classified now as interplanetary passenger."

"Not quite," said Betha Mestel's voice. "For one thing, there's only one passenger—I count as crew. For another thing, as soon as I can get old laszlo and be sure he'll act on what we're going to tell him, *Pearl*'s status will change again. She'll be *interstel-*

lar, not interplanetary."

"What the devil is all this?" broke in an impatient voice on the incoming circuit. "If this is a hoax, you'd better be ready to answer to the General Coordinators. Who sent the message about Project Lungfish?"

Alfeo turned nervously to the screen, where Dolmetsch's angry face glared out at them. "This is Farside Station, sir. We have a direct video link with *Pearl*, former asteroid of the Egyptian Cluster, now an interplanetary—interstellar—ship." He choked a little at the words, and looked at the other screen for moral support. "They requested a priority link to you at GCHO, and asked that specific message to be sent to you."

There was a perceptible pause as the messages went from Farside, through lunar low orbit relay, down to Earth via L-5 relay, then all the way back. Dolmetsch's face was a study as he saw the gleaming sphere appear on his screen. Confusion, alarm, and finally excitement showed there in turn, before he finally spoke again.

"Is that Betha? Where are you? The picture that I'm getting can't be from the Cluster, it's much too clear."

"I moved, Laszlo. You know, we were planning to do it anyway in a year or two. We felt we had to advance it. You may be able to guess why—the situation down on Earth, with the economic breakdown, and then the Logian changes to John Larsen. I'm flying *Pearl* around the Moon at this moment, piloting her down to low Earth orbit."

Dolmetsch was nodding his head gloomily. With his great, beaked nose, he seemed like some bird of prey ready to dive on its victim. "You're quite right about the situation here," he said. He sighed. "It's get-

ting worse by the hour. We've even stopped trying to keep it secret. We are trying every empirical correction I know, but it's like a sandheap against a tidal wave. Is Robert there with you?"

"No. He has already started on the other mission. Look, Laszlo, you know I can't come down to Earth. All the changes are still going well, and I'm ready to begin Phase Two. We've picked out the target star. There's no way I can approach a planetary surface, in this form. But both Robert and I felt that my appearance, here, might be the only way we could persuade you to act on the information that we want to give you."

"Who's Robert?" said Alfeo to Tem in a low voice. "Weren't you telling me just a few hours ago that nothing interesting ever happens on Farside Watch?"

"Come up and match us in orbit," went on Betha Mestel. "Then come over into *Pearl*. Bring the General Coordinators with you, as many as you can. They have to be persuaded even more than you do. The man who is with me, Park Green, will go back to Earth with you. He has all the materials that Robert left here—and he will have the general theory of stabilization with him."

The pause before the answer came back was much longer than usual. When Dolmetsch spoke, his voice sounded guarded and suspicious.

"Betha, we've known each other too long to lie, but I think you may be very mistaken. You know how long and hard we've looked for a general theory. I've said it before, many times, but let me say it again. The work I've done has been useful, no denying it. But at best I've been a Kepler or a Faraday. We're still waiting for our Newton and our Maxwell,

to explain all my empirics with a few fundamentals—mathematical laws that underpin everything. Now, you're telling me we have it, just when we most need it. I find it hard to accept any coincidence that big. Are you trying to tell me that this fellow, Green, worked out the general theory, just like that?"

"No. He's not an economic theorist, he doesn't know even the basics. Laszlo, I've learned something in the past month or two, and you'll have to learn it too. There is now an intellect present in the Solar System that makes you and Robert look like two children. Beginning with what he already knew of your work, he saw how to move to the underlying laws. It took him just a few weeks to do it."

"Weeks!" Dolmetsch sounded even more sceptical. "And we've been working on it for many years. I'd like to meet your superman—and I'll want to see that theory, in detail, before I'll accept or use any of it."

"You've met him already, but you won't be able to meet him now. I'll show you the theory when you get here. It's carried through far enough to define a set of corrective measures that you need to stop the economic oscillations."

"Betha, that's *impossible*, general theory or no general theory. Don't you see, you have to treat the cause, not the symptoms. We have to know what it was that triggered the new oscillations."

"I know. You'll understand too, when you see the formal evidence. We can tell you what started it, and you can check it for yourself. The root cause of the problems began the day of the first rumor that we had been contacted by aliens. In other words, the very day that John Larsen completed his change to a Logian form."

Dolmetsch looked thoughtful. "The timing's right," he said grudgingly. "That's when it began, and since then things have gotten steadily worse. Go on, Betha."

"You can do it for yourself. What's the most likely cause for the instabilities?"

"Psychological perturbation." Dolmetsch frowned in concentration. "We've always suspected that a basic change in attitudes would be the most likely starting point for widespread instability. You're saying that the rumors about Larsen were the beginning? Maybe. People would change their views of many things if they thought aliens were here. Xenophobia is always a powerful force, and there are rumors about immortality and super-intelligence already running wild down here on Earth."

He shook his head. "Betha, I'd love to believe you—but doesn't it just sound too unlikely, for the general theory to come along as a solution exactly when we need it?"

"It would be, if the two events were independent. They're not. They are really one and the same. The Logian form produced the instability, and also created the intelligence that could understand it and develop a countermeasure. Not coincidence, *consequence*. There was one basic cause for both events—the Logian form-change."

As the conversation proceeded, Pearl was swinging further around the Moon on her approach path to Earth orbit. When the geometry permitted it, the comlink to Earth was automatically re-routed through an alternate path by L-5 relay, and the reception of the signals at Farside began to fade. Tem and Alfeo bent over the screen, straining their ears for the weakening voices.

"I'll be up there by the time that you arrive," said Dolmetsch. His voice was firm, and he seemed to have made up his mind.

"You don't know how bad it is down here. If I wait longer before we begin new corrections, we may be too late to do any good. Can you begin sending me something here, as you fly in, so that I can get something going even before I get up there to meet you in orbit?"

"No problem. We'll begin sending on a separate data circuit as soon as you can open one for us."

The distortion in the signal received at Farside was growing rapidly. Alfeo had turned the gain to maximum, but the voices were fading in and out as the transmission to the Farside antenna was intercepted by the Lunar horizon.

"And where is Robert Capman now?" asked Laszlo Dolmetsch, his voice a faint wisp of sound among the background.

Tem and Alfeo crouched by the console, waiting for Mestel's reply.

"What did she say?" whispered Tem.

Alfeo shook his head. All they could hear was the amplified hiss of interplanetary static, seething and crackling with the noise from suns and planets. Betha Mestel's reply was gone forever, lost in the universal sea of radio emissions.

Farside watch, when it wasn't simply boring, could be most irritating.

Chapter Nine

OUTSIDE the orbit of Jupiter, the Solar System displays a different tempo, a new breadth of time and space. The pulse of Saturn, only fifteen million kilometers ahead of the ship but almost one and a half billion

from the Sun, beats thirty times as slowly as Earth's, in its majestic revolution about the solar primary. The great planet, even at that distance, looked four times as big as the Moon seen from Earth. From the angle of Bey's approach, the rings made the planet seem almost twice its solid width.

Bey looked at the display that marked the time to rendezvous. Just a few ship-days to go, and he wasn't sure of the speed of the reverse-change process. He suspected that it would be fast—the sophistication of all the form-change equipment on the ship was an order of magnitude better than most commercial installations, and many of the programs in the change library were unfamiliar. Even so, it would be better to go into the tank a little early, rather than a little late.

Capman would wait for him—that wasn't the issue. Bey didn't want to wait any longer than he had to, to hear Capman's explanations, and to confirm the ideas that had been fermenting in his mind ever since his departure from Earth. Longer than that, really. Bey thought back to his own first reaction, years earlier, when John Larsen had told him of the liver without an ID.

The data bank on the ship, primed by Betha Mestel, had informed him of *Pearl's* mission, bearing back to Earth the precious stabilization equations. It had told him nothing about his own mission. Bey sighed. He would know soon enough.

He took a last look at the ringed planet, growing steadily ahead of him, and at the Sun—still the wrong color—shrunk to a fiery pinpoint, far behind. With a little reluctance, knowing that a boring time was ahead in the tank, Bey set all the ship con-

trols to automatic. He climbed slowly into the form-change tank in the central part of the ship, called out the necessary program, and began the change.

By luck or skill, his timing had been good. When he emerged from the tank, the vast bulk of Saturn was filling the sky ahead, like a mottled and striated balloon. The trajectory maintenance system was already operating. The ship was past the outer satellites, moving from Enceladus to Mimas, then beyond, heading for a bound orbit inside the innermost ring of the planet.

Bey looked back at the Sun. It was only a hundredth of its familiar area, but now it was the usual yellow orb, with all traces of blue-violet gone. The tackiness had gone from his lips. When he reached out to touch the control panel, his coordination already felt better. On the panel, the attention light was blinking steadily, like an insistent emerald lightning-bug.

Bey had no nerves at all—or so he claimed. The tremor in his hand as he reached out to press the connect button had to be, he told himself, a lingering after-effect of the form-change procedure. He hesitated, swallowed, and finally pressed.

The display gave him an immediate estimate of the direction and range of the signal being beamed to him. The other ship was less than ten thousand kilometers ahead of him, in a decaying orbit that would spiral it slowly and steadily down towards the upper atmosphere of Saturn. When the video signal appeared on the screen, Bey could examine the fittings of the other ship's interior. They were unfamiliar, neither form-change tank nor conventional living quarters. But the figure who crouched over the computer console was very familiar. There

could be no mistaking that massive torso and wrinkled grey hide. Bey watched in silence for a few seconds, and finally realized that the other was unaware of his surveillance. The monitor must be on a different part of the console.

"Well, John," said Bey at last. "Last time I saw you, I certainly didn't expect we would ever meet here. We've come a long way from the Form Control Office, haven't we?"

The Logian figure swung around to face the video camera, and looked at Bey quietly through huge, luminous eyes.

"Come on, John," said Bey, as the silence lengthened. "At least you might say hello to me."

The broad face was inscrutable, but finally the head and upper body nodded and the fringed mouth opened.

"A natural mistake on your part, but my fault. Not John Larsen, Mr. Wolf. Robert Capman. Welcome to our company."

While Bey was still struggling to grasp the implications of what he had heard, the other spoke again.

"I am pleased to see that you are none the worse for the form-change that you went through on the way here. May I ask, how long did it take you to realize what had been done to you?"

"How long?" Bey thought for a few moments. "Well, I knew I'd been changed as soon as I became conscious in the tank, and I knew it had to be something that affected the senses the moment I saw the Sun. It looked as though it had been Doppler-shifted towards the blue, by a big factor—and I knew that couldn't be real. The ship was heading away from the Sun, not towards it, and in any case it wasn't going that fast. I didn't catch on then, though, and I

still didn't catch on when I noticed that the sound of the ship's engines seemed to be at the wrong frequency. Not too smart. But when I saw Jupiter, as we swung by, I was going into occultation. As I was watching it, I realized that it looked to be happening *fast*, much faster than it ought to. Physical laws are pretty inflexible. So, it had to be me. It was a subjective change in speed. I had been slowed down."

The Logian form of Capman was nodding slowly. "So just when did you understand what had happened?"

"Oh, I suppose it was about ten minutes after I came out of the tank. I should have caught it sooner—after all, I already knew all about Project Timesct. Ever since we found your underground lab, I've been expecting to meet forms that have been rate-changed the way that I was. I can't have been thinking too well when I first came through the form-change."

The Logian was nodding his head now in a different rhythm, one that Bey had learned as the alien smile. "You may be interested to know, Mr. Wolf, that I made a small wager with Betha Mestel, before I left Pearl. She asserted that you would take a long time to realize what had been done to you. She thought you would understand it only when you read it out of the data banks that had been loaded on the ship. I disagreed. I said that you would achieve that realization for yourself, and I bet her that it would happen within two hours of your leaving the form-change tank."

Capman rubbed at the swollen boss below his chest with a tri-digit paw. "The only thing we did not resolve, now that I look back on it, is any mechanism by which I might collect the results of the wager. It is three months now since Betha Mestel

passed on to Dolmetsch the stabilization equations. She is well on her way out of the System, and should not be back for several centuries. She could afford to make her bet with impunity."

The appearance and structural changes were irrelevant. It was still the same Robert Capman. Bey was convinced of it, and realized again the insight of Capman's remark, soon after their first meeting; the two of them would recognize each other through any external changes.

Before Bey could speak again, a vivid flash of color lit up the screen in front of the console on the other ship.

"One moment," said Capman. He faced the transmission screen and held his body quite still. For a brief second, the panel on his chest became a bewildering pointillism of colored light. It ended as suddenly as it had begun, returning to a uniform grey. Capman turned back to face Bey.

"Sorry to cut off like that. I had to give John Larsen an update on what has been happening here. He wanted to know if you had arrived yet. He's very busy there, getting ready for atmospheric entry, but he wants to set up a standard voice and video link and talk to you."

"What sort of link do you have with him? I saw John change the color of his chest panel, but always one color at a time. You did it with a whole lot of different color elements."

Capman nodded, head and trunk together. "That was for rapid transfer of information. I didn't want to take much time to explain to John what we are doing. Burst mode, we've been calling it. We found out about it soon after John changed, but I wanted to use it as a special method of communicating with him, so we kept

quiet about it. It handles information thousands of times faster than conventional methods."

"Are you being literal, or exaggerating the rate?" asked Bey, unable to imagine an information transfer rate of hundreds of thousands of words a minute.

"I'm not exaggerating. If anything, I'm understanding. I suspect that this is the usual way that Logians communicated—they only used speech when they were in a situation where they could not see each other's chest panels. It's a question of simple efficiency of data transfer. The Logian chest panel can produce an individual, well-defined spot of color about three millimeters on a side, like this."

On Capman's chest panel, an orange point of light suddenly appeared, then next to it a green one.

"I can make that any color, from ultra-violet through infra-red. The Logian eye can easily resolve that single spot, from a distance of a couple of meters. That was probably the natural distance apart for typical Logian conversation. Each spot can modulate its color independently, so."

The pair of points changed color, then for a moment the whole panel swirled with a shifting, iridescent pattern of colors. It returned quickly to the uniform grey tone.

"I ran the color changes near to top speed there. It's very tiring to do that for more than a few seconds, though John has held it for several minutes when he had a real mass of information to get to me quickly. Now, you can do the arithmetic. The panel on my chest is about forty-five centimeters by thirty-five. That lets me use roughly sixteen thousand spots there as independent message transmitters. If he were here, John could read all

those in directly. His eyes and central nervous system can handle that data load. If we were in a *real* hurry, he'd come closer, and I could decrease the spot size to about a millimeter on a side—just about the limit. The number of channels goes up to over a hundred thousand, and each one can handle about the same load as a voice circuit. That would be hard work for both of us, but we've tried it to see what the limits are."

Bey was shaking his head sadly. "I knew there had to be something strange about the com system that you put in the tank back on Earth—there was no reason for it to have such a big capacity. But I never thought of anything like this."

"You would have, if we had used it much. It was one of the things that worried me when John was using that mode to send me information when I was on Pearl: would somebody notice the comlink load and start to investigate it? I don't think anyone did, but as you well know there is really no such thing as a completely secret operation. You always need to send and store data, and sometime that will give you away. John tried to be careful, but it was still a danger."

Bey sat down on the bench next to the communicator screen. "I don't know who could have discovered you. I tried to guess what was happening, and I think I know a part of it—but it's only a part. I assume that John knows the whole story?"

"He deduced it for himself, within a couple of days after assuming the Logian form. His powers of logic had increased so much that I couldn't believe it at first. Now, I have observed it in myself also."

There was another flicker of light from the screen in front of Capman.

"John will be in voice communica-

tion in a couple of minutes," he said. "He's very busy making the last minute checks on the ship."

"I heard you say he would be making atmospheric entry. Surely he can't survive on Saturn? The form he is in was designed for Loge, and I assume that he's still in that."

"He is—but don't worry. The ship he's in has some special features, as does this one. You can see his ship from here, if you look ahead of you. He's already in the upper atmosphere, and the fusion drive is on."

Bey looked at the forward screen. A streak of phosphorescence was moving steadily across the upper atmosphere of the planet. As he watched, it brightened appreciably. The ship was moving deeper into the tenuous gases high above Saturn's surface. In a few minutes more, ionization would begin to interfere with radio communications. Bey felt a sense of relief when the second channel light went on, and a second image screen became active.

The two Logian forms were very similar, too similar for Bey to distinguish by a rapid inspection. However, there were other factors that made identification easy. The second figure was festooned with intravenous injectors and electronic condition monitors. It raised one arm in greeting.

"Sorry I couldn't stay up there to greet you, Bey," said John Larsen. "We're working on a very tight entry window. I want to descend as near as possible to one place on the planet. We've calculated the optimum location for low winds and turbulence."

"John. You can't survive down there."

"I think I can. We have no intention of committing suicide. This ship has been modified past anything you've ever seen before. It will

monitor the outside conditions, and keep the form-change programs going that will let me adapt to them. The rate of descent can be controlled, so that I can go down very slowly if necessary." John Larsen's Logian form sounded confident and cheerful. "Well, Bey, you've had a while to think on the way out here. How much of it have you been able to deduce?"

Bey looked at the two forms, each on their separate screens. "The basic facts about what's been going on for the past forty years. Those are fairly clear to me now. But I don't have any real idea on motives. I assume you know those too, John?"

"I do. But if it's any consolation to you, I had to be told them. I don't think they are amenable to pure logic."

"I agree," cut in Capman. "You would have to know some of Earth's hidden history, before you can understand why I would rather be thought of as a murderer, than have the truth known about the experiments. I am curious to see how far your own logic has taken you. What do you know about my work?"

"I know you're not a murderer—but it took me long enough to realize it. I understand all four of your projects now. Proteus was the basic space-going forms, and Timeset was the form that allows a change of rate for the life process. I knew about them four years ago. I assume that Lungfish is Betha Mestel. She's about to go out into a new living environment—interstellar space. How long will she be away?"

Capman shrugged. "We are not sure. Perhaps two or three hundred years. She was always an independent spirit. She will return when she feels that it is useful for her to do so. *Pearl*

was arranged to be completely self-contained. Fusion powered internal lighting takes care of the illumination for the algal tanks when sunlight is too weak for growth."

"I hope I'm around to see her come back," said Bey. "I now think that's a real possibility. You know, I didn't follow my first instincts when you, John, told me about that liver in Central Hospital. My first thought was that it must have come from a very old person, one so old that he had not been given the chromosome ID. That would have made him over a hundred, and I decided that no one would use a hundred-year-old liver for a transplant. Then we got an age estimate from Morris in the Transplant Department, and that showed a young liver. That seemed to be the end of the original thought. But it wasn't. Correct?"

"It was not," Capman nodded. "As usual, your instincts were good."

"The only project we haven't accounted for was Project Amphisbaena," went on Bey. "I should have realized that you gave your projects names that told something about the work you were doing. And Amphisbaena is the snake with a head at each end, one who could look both ways. You had developed a form-change program that could 'look both ways' in time. It could advance or reverse the aging process. The liver we found was from a very old person, who had undergone age reversal as a result of your work. Right?"

Capman's big eyes were hooded by their heavy lids. He was reliving another period of his life, rocking slowly back and forwards in his seat. He nodded. "It was from an old person. Worse than that, it was from an old friend. I could not prevent some of those experiments ending in

failure."

Bey was looking on sympathetically. "You can't blame yourself for the failures. Not everything can succeed. I assume that *all* the people who were used in those experiments were your old friends? But they knew the risks, and they had nothing at all to lose."

Capman nodded again. "They had all reached a point where the feed-back machines could not maintain a healthy condition. They had a choice. A conventional and rapid death, or the chance to risk what remained of their lives in the experiments. As you know, the compulsions we used to achieve form-change were extreme, but even so they did not always work. Let me assure you, the knowledge that their deaths were inevitable did not lessen the loss. When someone died in the experiments, I had killed an old friend. There was no escape from that feeling."

"I can understand that. What I can't follow is your reluctance to share the burden. No one who understood your work would have blamed you for what you were doing. Your friends were volunteers. This is the piece I can't follow. Why did you choose to keep everything a secret—even after your first discovery? Why was it necessary to have a hidden lab, away from Earth?"

Capman was still nodding, slowly and thoughtfully. He sighed. "As you say, Mr. Wolf, that is the key question. In a real sense, I did not make that decision. I am known to the System as a mass murderer, the monster of the century. It is not a role I sought; it was forced upon me. I could even argue that the real villains are Laszlo Dolmetsch, or Betha Melford. But I don't believe it."

"Betha Melford? You mean Betha Mestel?"

"The same person. I tend to call her by the name she had before her bond with Mestel."

"What did you think of her, Bey?" broke in Larsen. "You must have met her on Pearl."

"I did. I think she's marvellous, and I can't help wondering what she looked like before the form-changes. Betha Melford. Is she related to *the* Melfords?"

"She is Ergan Melford's only surviving heir. Every form-change royalty that BEC collects contributes two percent to Betha." Capman paused again, briefly carried into the past. "The merger with the Mestel fortunes made her the single most influential person on Earth, but she always knew the importance of keeping that hidden."

"And now, she has given all that up?" asked Bey.

"She did that a number of years ago. Betha is almost a hundred and thirty years old, and when we embarked on the age reversal experiments she had no way of knowing if she would survive them. Her financial interests are managed by a small group of people, on Earth and in the USF."

"Including you?"

Capman nodded. "Including me—and also including Dolmetsch. I told you that there are pieces of history that you need before you could hope to really know what has been going on. None of that has ever been written down. My own involvement began soon after I came back from studies in Europe, when I was still a student. I had just begun work at the Melford Foundation . . ."

Chapter Ten

"**T**HERE YOU ARE, Robert. I won-

dered where you were hiding away."

The woman was tall and elegantly dressed, with grey-streaked dark hair piled high on her head. She emerged from the tightly-packed crowd of people and came over to the young man standing uncertainly in the corner of the room.

"I'm sorry," she went on. "I talked you into coming here, then I walked out on you before I'd had the chance to introduce you to the one person I really wanted you to meet."

"I've been all right, Betha."

"Yes, standing on your own here in the corner. You don't even have a drink."

"I don't drink."

"I know that, Robert. You need one as a defense mechanism, until you learn what to do with your hands. Come on. I'm going to get you with someone you can actually talk to. I know you think all the rest of them here are just parasites. They are, too—but I'm old enough not to let it show."

She led the way back through the noisy crowd of people, out through the double doors that opened onto a wide terrace. Beyond that lay the calm, rolling lawns of the Melford estate. Sitting on the terrace wall, and staring vacantly out across the grounds, was another young man, scarcely as old as Robert Capman.

"Robert," said Betha. "This is Laszlo Dolmetsch. You two will hate each other at first, but you have to get to know one another."

The other had swung around at the sound of her voice. He scowled, a deep frown on the sloping forehead that rose above the deep eye sockets and big, beaky nose.

Betha Melford shook her head. "You two deserve each other. Neither one of you has the faintest idea of the

social graces. Ah well, you'll learn. I'm going back inside now. Come and look for me when you can't stand each other's company any longer."

Robert Capman looked at her uncertainly, as she turned in a swirl of natural silk and headed back in through the heavy doors. The other youth was looking just as uncomfortable. Capman advanced to the edge of the terrace, and sat down on the low wall.

"Any idea what all this is about?" he said guardedly.

Dolmetsch shook his head. "Not unless you're in econometric models. My father has known Betha for years, but she was the one who talked me into coming here tonight. She said it would be interesting." His tone was bitter. "So far, she's been dead wrong. That lot in there don't have the brain of a sponge, between them."

"I know. Look, have you ever worked in form-change theory? I thought that's what Betha meant when she said we should talk to each other."

"Never." The other's voice showed a quickening of interest. "It does have some relevance to what I'm doing, though. I'm developing a method of estimating the effect of technological changes on social systems. You know, usually a technological change happens, and it produces a social change that no one ever expected. Like the printing press, or the automobile—they led to *social* change, even though they were introduced as just technical inventions."

"Like the telephone, or the computer."

"Right." Laszlo Dolmetsch nodded vigorously. "Or like form-change. You see, if I'm right, that's a technological instrument that will produce the

biggest social changes ever—and that means it has to be handled really carefully. Look, do you understand catastrophe theory?"

"Sure. I've had to re-parameterize it for the biological work I've been doing, but the theory is all the same."

"All right. Now, how far can form-change go? If you can tell me that, I'll tell you how to estimate the sociological impacts."

"You mean you have a general theory?"

"I wish I did. No, there's still a lot of empirical fitting in there. But I can tell you pretty well what the stabilizing and the de-stabilizing effects of changes will be. So, what are the limits for form-change? I can't get a clear idea from the literature."

Robert Capman took a deep breath. "I'm sure you can't. If I'm correct, nobody knows—and they are all ultra-conservative in their thinking. Did you ever get into representation theory?"

"A fair amount." Dolmetsch moved a little closer along the terrace wall. "Go ahead, I'll tell you if you start to lose me."

"All right. First, let me tell you where the current thinking stops, then let me show you how it all generalizes. I'm going to take off from Ergon Melford's original experimental results on biological feedback . . ."

IT WAS WELL PAST DAWN when Betha Melford came back onto the low terrace. She stood in silence for a few minutes, listening to the conversation. Capman and Dolmetsch had looked across at her briefly when she came through from the house, then immediately returned to their discussions.

"I'm going to bed," she announced. "Everyone else has left, and there is a

hot breakfast in the west wing dining-room. When you two finally get done, remind me to tell you about the Lunar Club."

She sighed. It was no use. Neither was listening to her. It was nice to have her instincts confirmed so well, she thought, as she went back into the house.

"THAT WAS THE BEGINNING," said Capman, looking far back across the years. "We realized after that first night that we had to work together. As soon as I had the form-change ideas into a suitable form, we began to feed them into Dolmetsch's programs that modelled the Earth and USF economies. The results were depressing. Most of the changes that I wanted to explore were de-stabilizing, and some of them were completely catastrophic. The worst one of all was the age-reversal change. A few people might get to live a lot longer, but as soon as the news got out, the economy would blow up."

"But you did the experiments anyway," said Bey.

Capman nodded. "We both believed that there were two conflicting needs. Earth had to be stabilized, if we could do it. But we also had to have a new frontier, off Earth—more than the USF could offer. You know what we did. With Betha's help, we went underground. She financed the operations, and we had help from the rest of the Lunar Club. They were a small group of influential people, who shared a common worry about the future. They were modeled on the Lunar Club that flourished in England in the second half of the eighteenth century. Most of them are dead, now. Many of them died in the experiments. They were all willing volunteers for the work, as soon as

they knew that a natural death was close."

He fell silent for a while. Larsen spoke softly to Bey, switching in a voice-circuit that would not include Capman's ship.

"He's lived with this for eighty years, Bey, one way or another, and yet it still gets to him, the death of the people who'd been age-reversed in the form-change tanks. I'll be in atmospheric entry in a few minutes, and out of contact. He needs to get all this off his chest."

"I don't understand how it could be eighty years, John," said Bey. "We only saw evidence that it went back thirty."

"That's when they moved the main base of operations to Pearl. Capman moved what was left into the facility under Central Hospital. Dolmetsch thought that was an acceptable danger, even if it were discovered. He calculated a limited social effect, one that he thought he could compensate for."

"John, how much of all this do you understand now? Will the general theory of stabilization really work?"

"Within limits. We still can't let people know that age reversal is possible. I understand most of this—I helped Capman when he was working out the theory, in the past few months. Make no mistake, Bey. You know how I've changed mentally since I became a Logian form—but Capman has changed just as much, and you know where he started from. I still can't follow his thinking. I can't describe the way this form feels. You should take the change yourself, and know it first-hand."

Larsen stopped speaking and looked across at the display screen in his control cabin. "I'm close to entry. We'll lose radio contact very soon. I

should be able to re-establish it in a few hours." He switched back to a circuit that connected him also with Capman's ship. "Sixty seconds to signal black-out."

"John," said Bey rapidly. "I still don't know why you're going down there. There must be a big risk."

"Some. Less than you think, as we have calculated it. Why are we going down there? Come on, Bey, use your imagination. We think there's life down there, and we think humans in Logian forms can live there. It's our second beachhead, an area ninety times as big as Earth. If the collapse comes—and we hope it won't—we need some other options, off-Earth."

The quality of the voice transmission was rapidly deteriorating as Larsen's ship dug deeper into Saturn's atmosphere. Larsen obviously knew it too. He raised one heavy arm, and spoke his last words rapidly. "See you soon, Bey. Come on in, the water's fine."

Bey looked through the forward screen, watching the trail of ionized gases that glowed from Saturn's face behind Larsen's plunging ship. The entry was a daunting prospect. Saturn's surface gravity was almost the same as Earth's, but with an escape velocity more than three times as high, movement to and from low orbit was a difficult feat for any vessel.

"Don't worry. Mr. Wolf." Capman had come out of his reverie, and read the expression on Bey's face. "This has all been calculated very closely. Unless there are unknown forces at work in Saturn's lower atmosphere, the danger to John Larsen is very small."

"And you are intending to follow him down?" asked Bey.

"Perhaps. Let me answer the ques-

tion behind the question. Obviously, we could have exchanged all the information between us by radio link. Why did I think it necessary to bring you all the way to Saturn, in order to talk to each other? After all, in my present form it is obvious that we cannot meet in person, even if there were reason to do so."

"That will do," said Bey. "I might have chosen different words, but the meaning is the same."

"Then since I asked your question, would you care to attempt to give my answer?"

Bey smiled. "There is one obvious answer. You want me to join you in this experiment. To change to the Logian form, and descend to the surface of Saturn."

"And then?"

"As I said, that is the obvious answer. Unless I am losing my ability to read a little deeper, it is not the whole answer. I can't provide the rest of it."

Capman was sitting perfectly still in his chair, big eyes unblinking. "It is not simple," he said. "Like many things, it involves a choice. Tell me, in your investigation of my background, did you ever see a psychological profile?"

Bey nodded. "An old one. When you were still in your teens."

"That would do. Did you notice anything peculiar about it?"

"You're joking, of course. As you know very well, it was similar to mine—more similar than I would have thought possible. I must say, I found it very encouraging in some ways. You showed low scores on some of the same things as I did—intelligence, for instance. Until I saw your profile, mine had always worried me a little."

"We don't fit well on the standard

charts, either of us," said Capman, with the nodding smile of the Logians. "I doubt if I would fit them at all in this form. But we are a little different—not a lot, but enough to worry me that some people like us are failing the humanity-tests. You may be interested to know that *you* just squeaked through. Well, that is irrelevant at the moment. Shortage of people, even of people like oneself, is not Earth's current problem. Let me get to the point. I brought you here to offer you a choice. It is one that I would not make to anyone else. I can do it in your case only because we have that curious affinity of mind. Both branches call for self-sacrifice of a sort."

Bey began to feel again a rise of tension, a suspicion coming from the base of his brain. "To change to the Logian form, and explore Saturn . . ."

Capman nodded. "Or else?"

"To return to Earth, and continue the work on the control of form-changes? Laszlo Dolmetsch and the others need advice from somebody who really knows form-change theory. If I choose Saturn, you will return to Earth yourself."

"That is correct. If that is your choice, to remain here, I will borrow your outward appearance and go back to Earth. One of us must be there. No one would question Behrooz Wolf's return, or knowledge of form-change."

"It must be quite obvious to you that I would prefer to stay here. The mental advantages alone of the Logian form are enough to make me want to choose that alternative."

"I know," Capman sighed. "That cannot be denied. All I can say is that the return to Earth, and all its problems, would not be permanent. When Earth's troubles lessen, or become

hopeless, or you find and train your own successor, the Saturn experiment will still be here. There will be other work to do—Betha was the first of the Lungfish series, not the last. But it is your decision as to the next step. I am prepared for either role."

"How much further can form-change be carried? Betha Mestel suggests that we are only at the beginning."

"We are," Capman bowed his head. "I am beginning to suspect that the boundary that we impose between the animate and the inanimate is an artificial one. If that is true, form-change has no real limits. We can conceive of a conscious, reasoning being as big as a planet, or as big as a star. It would have to be a mixture of organic and inorganic components, just as Betha is; but that presents no logical problems. I have a more fundamental question: at what point would the result cease to be human? If our tests for humanity are valid, any human—or alien—and machine combination that can achieve purposive form-change should be considered human. I can think of worse definitions. Tell me, have you made your decision?"

Bey was silent for several minutes, watching the clouded face of Saturn speeding by below the ship. "Tell me," he said at last. "Do you remember the time that we were in Pleasure Dome, waiting for the decision as to whether or not they would let us talk to the people who were in charge of the form-change operations?"

Very well. Why do you ask?"

"Just before they showed us Newton, in the garden at Woolsthorpe, there was a scene of a torture chamber. If the Snow Queen was telling the truth, that scene showed something that one of us wanted. Would you agree that we were the

(cont. on page 89)

LEAVES

STEVEN UTLEY

Something had happened in that graveyard that would haunt those who were present for years to come. . . .

Illustrated by D. BIAMONTE

“DO YOU KNOW what becomes of people who die violently?” Dale asked me.

We looked around at the gray, naked trees and up at the boiling sky and, finally, down at the grave. Huddled in our jackets against the brisk October wind, we just looked and said nothing for a long, long time.

Dale cleared his throat after a while and answered his own question. “Ghosts. They become ghosts.”

“Dale,” I said, “let’s go.”

“No ghost ever got that way through dying peacefully.”

“I don’t believe in ghosts.”

“They’re an unknown quantity. Who really knows?” He gestured toward the mound of dirt before us. “For just a moment, pretend you really do believe in the existence of ghosts. Suspend your skepticism. Now what would you expect to happen?”

I closed my eyes and shivered. The wind was getting through my jacket. I wanted to get away from this place.

I USED TO LIKE the cemetery. When I was little and not scared of anything, it was a good place to explore. Later on, when I had grown to be less sure of things, the cemetery was a nice place to go to have hours-long talks with good friends. Summer

nights in Tennessee, hot nights, with the trees moving overhead and deep shadows everywhere and all of that hard, cold marble all around. In the autumn, there were leaves and wind-devils everywhere. Winters there were beautifully eerie. Spring was indescribable. But the summer was the best time of all. I had fine times in the cemetery in the summer, pleasant times, close times, when I was just out of high school and had nothing much to do between that and my first semester at Memphis State except write my dreadful poetry and dabble with my paints. I would sneak out of the house around midnight and meet Dale and maybe one or two others, and we’d sit in the heart of the graveyard until false dawn, talking about important things like college and sex and what we wanted to get done in our lifetimes. But now here it was Thanksgiving, and I had been a witness to a horrible thing. And I wanted to get away from this place.

DALE WAS SMILING at me with the left corner of his mouth. “What would you expect to happen?” he asked again.

“Dale.”

“You won’t suspend your disbelief in ghosts for even a second?”

“No, I won’t. I didn’t even want to

come back to this place."

"Neither did I. But I got frightened. All I did up north was think about what happened, and I had to come back and look. Just to be sure, I guess." He took a step backward, away from the grave, as a wind-devil picked up a handful of dead leaves and danced them over the grave and around our heads for a moment. Then the leaves were whirled away among the surrounding headstones. I shivered again.

"Ghosts are restless things," Dale said. "Irate spirits. Nasty as all hell to deal with, I bet. The men who did this are going to have their hands full if—"

"Stop it!"

He eyed me closely, shrugged and looked away. "I'm sorry, Linda. I'm disturbed by all of this. I am sorry."

"You act like it was all your fault. There was nothing you could have done."

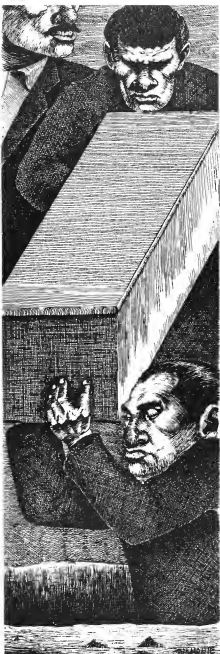
"We could have tried to stop them."

"We'd have gotten shot, just like . . . They were too scared to think straight at the time. They'd have shot us, too."

Dale made a disgusted-sounding noise with his mouth. "They're still too scared to think straight. They've always been scared. They're afraid of everything. And they really think that burying it here, setting up that phoney marker, will keep anyone from finding out just how scared they can be."

I looked at him, horrified. "You're not going to tell, are you?"

He looked thoughtful. "No. No, I guess not. Who'd believe me? No. I expect something else to happen. I've got the beginnings of a feeling. A bad one. I don't know how to explain it, it's just something I sense. A



premonition-of-doom type of thing."

"Let's get out of here, okay?"

"You feel it, too?"

"No! This whole thing is over and done with! There's nothing anybody can do to change what happened. They've hushed it all up with lies, and they'll never tell the truth. And neither will we. It ends right here."

Dale sighed morosely. "I hope you're right. About it ending. But, God knows, if I was the dude buried here, I wouldn't let it end. I'd be mad. I'd want revenge."

"Let's go, Dale. Please. This place gets on my nerves."

"Sure." He thrust his pale hands into the pockets of his jacket and turned to walk past me toward the gravel drive where the VW sat. I followed close behind. We stopped beside the car and looked back across the cemetery. The wind-devil was making the leaves dance again.

"Are we going?" I asked, after a minute or two had passed in silence.

"Yeah. You want to drive?" Dale handed me his keys. "I'm not much in the mood."

I opened the door on the driver's side and slid in behind the wheel. Dale walked around and got in but didn't close his door. He looked past me.

"I think I'll leave town for good," he said. "Never come back. Get a job in New York or something. Maybe you should, too. I'm scared, Linda. At least as scared as any of the guys who did it. Anything could happen now. Look, what if he's down there in the ground, gathering his strength, waiting for just the right moment to pop out? Waiting for the killers to get close enough so that he can—oh, hell, I don't know!"

I opened my mouth to speak but could think of nothing to say to him.

He was too serious to be put down. My head turned, slowly, and my gaze followed his.

Leaves swirled around the cheap headstone over the grave.

DALE AND I weren't supposed to know about the grave. It was an ordinary-looking grave with a small, ordinary-looking headstone, and the inscription on the headstone summed up an ordinary-sounding life, something like:

JOHN DOE

b. 1920-d. 1974

That wasn't what the inscription really said, of course, but it didn't matter. The inscription was a lie just the same.

Dale and I were in the cemetery the night "John Doe" died. Was killed, rather.

It must have been one or two o'clock, the first night of the Lahor Day Weekend. Dale and I were straddling one of the bigger headstones, facing each other, me humming softly in my throat, him looking up at the sky, the two of us waiting for nothing in particular in the way of something to talk about. Dale and I had been friends throughout our senior year of high school. We thought of ourselves as a couple of near-total misfits who had banded together against what we regarded as the forces of evil and injustice. We went to movies and concerts and things in Nashville, but it was never as though we were *dating*. Rumors to the contrary, we never went to bed together. We never "fell in love" or any of the rest of that high-school garbage. I had had one real boy friend in high school, during my junior year. I don't think that Dale ever had a girl friend. He was incredibly shy around girls—myself

excluded. Dale and I were friends. I suppose that we did love each other. He did kiss me sometimes.

We liked the cemetery. We watched for meteors (and for the occasional patrol car: the dead were supposed to have the place all to themselves between sunset and sunrise), and we tried to figure out the constellations. We read tombstones by the light of full moons and imagined what those buried people must have been like in life. Mostly, we talked and enjoyed each other's company. That was how we spent the summer following graduation. And then, on the first night of the Labor Day weekend, the summer was suddenly all used up.

We were both feeling sad, because we knew that we probably wouldn't see each other again before Thanksgiving. I was going to study art at Memphis State. Dale was going to catch a Sunday flight to Syracuse, of all places.

"Christ!" Dale softly exclaimed, pointing excitedly at something behind me. I twisted around on the marble and saw a brilliant flame-colored streak in the sky. It must have been enormous. It took several seconds to burn out.

"That's the brightest one I've ever seen," Dale said. "Must've been as big as a truck when it hit the atmosphere."

"I wish it could've made it all the way down. A small piece of it, anyway. I've never seen a meteor after it's hit."

"Meteorite, in that case."

"So meteorite, smart-ass. I've still never seen one up close."

"Not much to see. Pitted rock."

The conversation drifted along to other topics. We were talking about William Goldman's *The Temple of*

Gold when he suddenly pointed at the sky again. There was another point of light there, a dimmer one. It didn't burn out, though. We watched it move down the sky, and I heard Dale murmur, "Airplane."

And I said, "Airplanes're supposed to blink, and this just—"

And then the point of light arrived and passed almost right over us with no more sound than a thin whine. It left a streak the color of dying fireflies as it swept past and whipped out of sight behind the trees in the graveyard.

Before either of us could blink away the image of that streak, the thing hit the earth and tore itself to pieces to the accompaniment of incredibly loud tortured-metal noise, mingled with the crack and crash of falling trees.

Dale and I were off that tombstone and on our bellies in the grass before we realized it, cringing in anticipation of an explosion which never came. The noise simply died away. We lay in the grass, listening to the treetops move with the breeze.

"God damn," Dale finally gasped. We looked at each other stupidly. Another minute must have passed before we got to our feet and, without so much as a word of agreement being spoken, took off in the direction of the crash. We ran carefully, staying in the moonlight and keeping a close eye out for the smaller headstones, the ones that could break a leg or shatter an ankle if you weren't careful.

We found the thing near the northeast corner of the cemetery. It had shattered a couple of medium-sized trees on its way in. Shreds of some sort of fabric were hanging from branches and lay among the rows of graves. There was a rectangular box, about the size of a foot-locker, half-

buried in the ruins of somebody's family plot. The box looked pretty well banged up. A thick, greenish vapor hissed from a rent in one side and hung, glowing faintly, in the air. A marble statue of Mary lay in pieces all around.

"What is it?" Dale asked, after we had stared at the wreckage for quite a long time. His voice sounded strange, high and cracked and scared. Not that I blamed him at all.

"I don't know. I've never seen anything like it."

"We better go tell somebody."

We started to back away, then stopped in our tracks.

"Listen," I said.

A car was moving through the cemetery. We caught the flash of its headlights as it crunched along the gravel drive weaving among the plots and trees.

"The caretaker heard it, too," Dale said.

"You think we should wait for him to get here?"

"No. We're not supposed to be anywhere near this place at this hour. Let's go."

"Okay, so let the caretaker handle it. But let's at least watch, huh?"

We eased ourselves back into the shadows under the trees and squatted to watch as the car ground to a stop on the drive between us and the wreckage. Three people got out, a fat man in bib overalls and two younger men.

"Jimmy and Carey Nicholson," Dale whispered. His night-vision was much sharper than mine. "Caretaker's boys. Real assholes."

I nodded. I remembered Carey Nicholson. He had come up behind me at a graduation-night party and grabbed my breasts. He hurt me, but not as much as I hurt him when I

turned and kned him in the crotch. Carey had doubled up with distress, on-lookers had doubled up with laughter, I had left. I never knew brother Jimmy personally, but, from what I knew of him, he seemed to have been cast in his brother's mold. A slope-brow in his own right.

The three men stood together in the moonlight and regarded the mess all around them.

"What the hell is this?" I heard one of them exclaim.

The caretaker kicked at a piece of fabric, then turned to mumble something to one of his sons, who returned to the car, backed around and drove away. The caretaker and his remaining son walked around, poked at the stuff hanging from the trees and came at last to the box. I noticed that there was no longer any glowing vapor escaping from the tear in its side.

After maybe twenty minutes had passed, Dale leaned toward me in the darkness and said, "C'mon, let's get out of here. There's nothing more to see, and these clods are just going to piddle around and pick their noses until the sun comes up.

"But what is that thing, Dale? A space capsule, you think?"

"How the hell should I know? Come on. We can read all about it in tomorrow's newspa—" He stopped. We listened. Two cars were now making their way to the crash site. We waited and watched as the caretaker's son pulled up with a patrol car in tow. The latter disgorged three more men, whom Dale identified as the chief of police and a couple of officers. They snapped on the patrol car's high beams, illuminating the strange box, and everybody conferred and did some more walking around and poking at stuff.

"You're right," I finally whispered

to Dale. "Let's go home."

We got up, and then everybody, Dale and I in the shadows, the six men in the light, froze. There was an unGodly loud pop from the box as a panel swung open. A few last wisps of vapor wafted out, yellow in the light of the high beams.

Something inside the box stirred, dragged itself out and fell to the ground. It pushed itself up and seemed to gesture toward the petrified men, toward the headlights.

In the light, the thing glowed silver and blue.

The policemen fumbled their revolvers out of their holsters and began to shoot it.

THEY GOT a much closer look than Dale and I did, of course. The men were all standing perhaps a dozen feet from the box when it popped open. I think I remember one of the Nicholson boys screaming quickly as the creature crawled out. And the officers shot it.

They must have kept firing until there was no ammunition left in their guns.

THEY WERE scared. They yelled and cursed at one another afterwards, and they dragged the thing over to the paupers' plot, and Dale and I followed at a distance and watched them scoop out a grave. They buried the creature there, and the policemen hauled away the box and the shreds of fabric. That stuff was probably dumped into the Cumberland River.

They said as little about that night as they could. People in town wondered about vandals who could tear up whole trees, but the police stuck by that story and promised a full investigation. I guess that the Nicholsons took chain-saws to the shattered

trees and re-sodded the mangled family plot and, in general, cleaned up things. When Dale and I returned to the cemetery in October, there was no sign of a crash. There was only a small, cheap headstone, the kind that paupers get.

That was the end of it, apparently as far as any of the killers were concerned.

AND DALE and I made our separate ways home on the first night of the Labor Day weekend, and I crawled into bed but couldn't sleep. Not that night, not for a couple of nights afterward.

"IT WAS MURDER," Dale said, fumbling for his cigarettes.

"I know." I slid the key into the ignition slot.

"He, it, whatever, was hurt. Dying, probably. He needed help. And they killed him."

I said nothing. We had been over it many times in our letters, and we had a fair notion about what the bright, flame-colored meteor must have been: a ship, a vessel, vaporizing in the atmosphere. The box had surely been an escape vehicle, a lifeboat. One which had failed for some reason that we would never know.

"It was murder, Linda."

I still said nothing. I turned the key.

"Ghosts," Dale murmured as the car started to edge forward. "What if there are such things? Vengeful spirits, walking the night—"

"Dale, will you please shut up?" I was so startled by the realization that I had screamed the words at him that I put my foot down on the brake, hard, and stopped the vw before it had traveled two yards. I was trembling all of a sudden. Dale leaned

(cont. on page 77)

In "The Sleeping Beast" (January, 1978), Captain Grimes, the Baroness and Big Sister encountered Brardur—a sentient alien spaceship—and in self-preservation destroyed it/him. Now big Sister picks up the pieces and takes her passengers to—

JOURNEY'S END

A. BERTRAM CHANDLER

Illustrated by Richard Olsen

THINGS WERE a little better aboard *The Far Traveller* after the Brardur affair. There had been the danger shared by the Baroness and Grimes—and, when it came to the showdown, Big Sister had been loyal to the two humans rather than to one of her own kind. She had told Grimes, "You may be a son of a bitch, but you're *my* son of a bitch." She had sided with her fellow female, the Baroness, against the aggressively masculine electronic entity from otherwhen.

There was a three-sided conference in the Baroness's *salon*. The Baroness, wearing her usual filmy, white translucence that revealed more than it concealed, was reclining seductively on her *chaise longue*. Grimes was thinking, as he had thought so many times before, *You may look, but you mustn't touch* . . . (But the hated Drongo Kane had looked *and* touched. What did Drongo Kane have that Grimes hadn't? His own ship, for a start, and a sizeable fortune, and the sort of amoral raffishness that would make a far greater appeal to an El Doradan aristocrat than Grimes' bourgeois respectability.) Grimes, much as he hated it, was resplendent in his purple and gold livery. Big Sis-

ter, as always, was no more than a voice from the gleaming, rococo playmaster. The golden robot butler was in attendance with a crystal pitcher of what, Grimes was bound to admit, were probably the finest dry Martinis in the known universe.

The Baroness looked at Grimes over the gold rim of her goblet. She said, "We had a narrow escape."

Grimes said, "Our civilisation had a narrow escape, Your Excellency. That . . . *thing* on the rampage could have done untold damage." He took a sip from his glass. "I shall be making a report to the Survey Service, of course, as all civilian shipmasters are required to do regarding any unusual events during a voyage. I shall recommend—speaking as a one-time officer of the Service—that Big Sister's action be rewarded by the Federation. There is no precedent for the award of decorations to robots, but there has to be a first time for everything. The Galactic Star of Honour, perhaps . . ."

Big Sister's tinkling laugh came from the speaker of the playmaster.

"A medal?" she asked. "Where would they pin it on me?"

"We could have it welded to your hull," said Grimes half seriously.

"And the colours of the ribbon could be painted above it."

"Very funny," commented the Baroness. She was back, Grimes realised, on to her old tack, disapproving of any attempts at humour made by either or both of her shipmates. "And now, Big Sister, I understand that Captain Grimes' late employers, the Federation Survey Service, have requested us to stand by the wreckage until their destroyer *Canopus*, in the fullness of time, homes upon us to carry out an investigation. I understand, too, that a request made by the Survey Service to the master of a civilian vessel is tantamount to an order." She turned to Grimes. "Is that so, Captain?"

"Not quite, Your Excellency," said Grimes carefully. "But failure to comply could lead to the offending master's being placed upon an unofficial black list."

"I would imagine," said the Baroness, "that you are already on the black list, the official one, bearing in mind the circumstances of the resignation of your commission and all that has happened since. However, we are not on a commercial voyage. No consignees are anxiously awaiting our cargo and considering the imposition of legal penalties upon us for late delivery. We might well defer our resumption of passage, employing the time profitably by carrying out our own investigation. Big Sister is at least as capable of determining Brardur's time and place of origin as any of the Survey Service's scientists."

"At least as capable," agreed Big Sister. "I would suggest, Your Excellency, that the general purpose robots be set to work at once securing the wreckage. There is a slowly expanding sphere of debris, the components of which will be extremely hard to locate



by the time that *Canopus* reaches us."

"What do you say, Captain?" asked the Baroness.

"Big Sister is right," said Grimes. As always, he thought.

GRIMES went out himself in the pinnacle to direct the work of the general purpose robots. He enjoyed the task. He liked all aspects of spacemanship, but aboard *The Far Traveller* Big Sister was doing most of the jobs that should have been his, and the Baroness made no secret of the fact that she considered the pilot-computer to be more efficient than the captain.

Fortunately the sphere of debris was expanding very slowly; the explosion that had destroyed the ship/being calling itself/himself Brardur had been a remarkably gentle one. Big Sister, Grimes realised, must have planned it that way, must have calculated with great care the power of the bombs introduced into the alien hull concealed inside the metal bodies of two of the general purpose robots.

The Far Traveller's radar was fantastically sensitive. The equipment in the pinnacle was also sensitive, although without the range of the set aboard the ship. The robots themselves were capable of metal detection and, with their propulsive units, functioned as tiny spaceships. Grimes, seated in the pinnacle's control cabin, began to think of himself as a commodore in charge of a search and destroy mission. But this was search and secure, and if he was a commodore and the pinnacle his flagship, the real flagship was *The Far Traveller* and Big Sister the admiral. Still, she let him play by himself, only shoving her oar in when there was some tiny fragment that she could "see" and that was too small to be detected

either by the pinnacle or the robots.

Grimes lost track of time. There were refreshments aboard the boat—iced water, hot coffee, sandwiches, pastries—so that neither hunger nor thirst obliged him to call a halt to operations. He was not tired, although he would be later. Like most spacemen he loafed through the day when there was nothing much to do but, when the occasion arose, was capable of long hours of concentrated effort.

So he sat there, directing his forces, his half score of golden automata, from target to target, building what looked, in the glare of his searchlight, like a tiny planetoid of scrap metal, towing it in towards the parent ship in an ever decreasing spiral. He did not think that he had missed so much as a pinhead. (Had he done so, Big Sister would soon have told him.)

Finally he was finished. He carefully matched trajectories with *The Far Traveller*, half a kilometre distant, then slipped the combined towline and power cable from the electro-magnet about which the debris was clustered like swarming bees about the queen. The robots would bring it in, piece by piece, to Big Sister's laboratory, a holy of holies from which both Grimes and the Baroness were excluded, a compartment in which the deployment of energies could slice and barbecue frail human flesh. Grimes steered the pinnacle to the open door of the boat bay, slid in without making contact. He felt and heard the soft *thunk* as the padded clamps closed about the hull of the boat. As soon as the compartment was pressurised the doors of the little airlock opened, before Grimes could bring a finger to the control stud on his console. *Big Sister again*, he thought. *Doing my thinking for me . . .* He unsnapped his seat belt,

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made his way out of the pinnace and then to the yacht's control room.

He found the Baroness there, looking out through the viewports at the robots working busily around the bundle of wreckage. She asked, without turning around, "Did you get it all, Captain?"

"I think so, Your Excellency," he replied. "Of course, there may be a few odd molecules that we missed . . ."

"Only a very few," put in Big Sister smugly from the transceiver.

"So . . ." said the Baroness. "So . . . And do you think, Big Sister, that you will be able to determine the age of Brardur from the debris?"

"It should be possible, Your Excellency."

Grimes watched two of the robots, their propulsion units flaring briefly, bringing a ragged square of shell plating in towards *The Far Traveller's* cargo port. Three others were wrestling with what looked like a weapon—laser? projectile cannon?—that had survived the explosion almost intact.

Grimes said, "I think we should leave that for the Survey Service armaments technicians."

The Baroness said, "Morally, and possibly legally, I have a greater right to the spoils of war than the Survey Service."

"Mphm," Grimes grunted. It was a rather dubious point. He said, "If you will excuse me, Your Excellency, I'll get my head down. I'm rather tired."

She told him, "I am sure that Big Sister and I will be able to manage quite well without you."

GRIMES enjoyed a hot shower and then retired to his bed. Like most spacemen he could sleep in almost any conditions, from Free Fall to several gravities acceleration. Free Fall

he had always found the most restful, however, and he fell rather than drifted into unconsciousness almost before he had finished adjusting the retaining straps. Briefly he realised that he had left no word regarding a call, but decided not to worry about it. If he were wanted he would very soon be awakened.

He slept. He did not dream.

He slept.

He was awakened eventually by the pressure on his bladder. He unstrapped himself, went through to his bathroom. Although he enjoyed a Free Fall sleep he preferred gravity to aid the eliminatory functions. He remembered what a disgruntled cadet had said during a training cruise—and that cadet had been himself—"Like pissing into a vacuum cleaner . . ." The Petty Officer Instructor had not been amused. Queen Victoria, he thought wryly, must have hordes of descendants scattered throughout the Galaxy . . .

When he was through he looked at his watch. Surely he had not been sleeping for only one hour of ship's time . . . Thirteen hours it must have been. But obviously he had not been required. The vessel was functioning normally so far as he could tell. His efficient robot stewardess appeared with a squeeze bulb of piping hot coffee. He took it from her gratefully. After the first long suck to began to feel almost human.

He asked, "How are things?"

Big Sister replied, through the golden girl, "Everything is under control, Captain. As always."

"I'll be coming up to Control shortly," said Grimes.

"There is no need to hurry yourself," he was told.

He showered, depilated, dressed. The stewardess brought him break-

fast, egg-and-bacon sandwiches and more coffee. He went up to the control room. He stared through the ports incredulously.

During his slumbers the tireless robots had been working busily. From *The Far Traveller's* hull extended two spidery arms, a latticework that must have been constructed from Brardur's wreckage. At the end of these was the strange weapon that had been salvaged almost intact. It was aimed at the yacht.

"What the hell are you playing at?" demanded Grimes. "Russian roulette?"

Big Sister laughed metallically. "No, Captain Grimes. That . . . gun is fully loaded."

"Then turn the damn' thing round and point it at somebody else! That's an order!"

"You are not the Owner, Captain. I take orders only from the Owner."

"Big Sister takes orders only from me, Captain Grimes," said the Baroness, who had just entered the control room. "I admit that I did not *order* her to set up that apparently suicidal contraption. But I gave my consent to her doing so." She smiled. "After all, this is a scientific expedition."

"And do you intend," demanded Grimes, "to write a thesis on what it feels like to be a target, a sitting duck? If you survive, that is." He added, "If *we* survive."

She laughed. "Frankly, I was rather dubious myself when Big Sister made her proposal. But, if you like, you may check her calculations . . ." A series of complex equations appeared on the screen of the transceiver. "But for you to do so would take several months, at least, with no guarantee that your sums would come out right. After all, Captain, she is the com-

puter in this ship. Neither of us is."

A *suicidal computer*? Grimes wondered. There were such, he well knew. The electronic brains of the more sophisticated homing missiles, for instance . . . But such specialised artificial intelligences are programmed for self-destruction. Big Sister was not. She had as strongly developed a sense of self preservation as any human.

He said, "I'm only the captain. Nobody ever tells me anything. Would you, as a personal favour, put me in the picture?"

Big Sister said, "You are familiar with the concept of alternate universes. Brardur did not come, as we assumed, from the distant past of *this* universe but from another continuum. Fortunately he—or the computer housing his intelligence—was not entirely destroyed by the blast. Portions of his memory bank survived. Those memories are now mine.

"As we surmised, there was a war in which he was involved. His crew surrendered to superior enemy forces—but he did not. His personnel abandoned ship but he went on fighting. He sustained a direct hit from a weapon of the same type as that cannon you salvaged from his wreckage . . ."

"Then why wasn't he destroyed?" asked Grimes.

"He would have been," said Big Sister. "He should have been reduced to a mere blob of collapsed matter—but, in the very nick of time, he tried to escape from the battle by starting his interstellar drive, which was very similar in construction as well as principle to our own Mannschenn Drive. This interaction of fields and forces resulted in his being flung out of his own universe into ours."

"And you," said Grimes, "want to

fling us out of our universe into his."

"However did you guess?" asked Big Sister sweetly.

"No," said Grimes. "No, repeat and underscore, no."

"Where is your spirit of adventure, Captain?" asked the Baroness. "After all, when you were in the Survey Service you were always involved in hazardous enterprises."

He said, "When I was in the Survey Service, Your Excellency, I was known as Lucky Grimes. My luck ran out on Botany Bay."

She raised her eyebrows. "Did it, Captain? Did it? In my opinion you were lucky to have survived the *Discovery* mutiny and its aftermath with a whole skin. You were lucky that I came along to save you from the righteous wrath of Commander Delamere."

She was right, Grimes realised. He was still lucky. And it was the lure of the unknown that had motivated him in his choice of a career, that had made him prefer the Survey Service to employment in one of the major shipping lines with their regular runs along well charted trade routes.

He said, "All right. *The Far Traveler* is your ship, Your Excellency. Big Sister is your servant. And so am I. I have no reason to doubt the accuracy of Big Sister's calculations. Furthermore, I have already, a few years ago, made the transition from our universe to another, although on that occasion I had no choice, no control. This time there is choice and control." He turned to the transceiver. "All right, Big Sister. Fire at will."

"Who's Will?" she asked.

The Baroness sighed. "I am beginning to think," she said, "that the pair of you would be better employed as entertainers than in running a spaceship. Meanwhile, when will you be

ready, Big Sister?"

"I am ready now," came the reply. "All the general purpose robots have been recalled. As soon as you and Captain Grimes are secured in your seats I shall activate the Mannschenn Drive and fire the weapon. As it is in physical contact with my hull we shall take it with us. We shall not be slamming the door after us."

Mad, thought Grimes as he adjusted the retaining straps. *Mad. Completely mad. And I must be round the bend myself to sanction it.* He looked out through the ports to the ominous weapon, to the bright, familiar stars beyond the dull-gleaming metal of the great cannon and its supports. And what did it fire? he wondered. What was its projectile? A black hole?

He realised that Big Sister had started the yacht's Mannschenn Drive. There was the low humming, a rumble almost, as the gyroscopes began to spin, faster and faster, the sound rising in pitch to a high, thin whine. He visualised the gleaming rotors spinning, tumbling, precessing, and in the control room perspective assumed an Escherian quality while colours sagged down the spectrum. The Baroness said something and it was though she spoke in an echo chamber. Outside, the stars were no longer points of light but an infinitude of coruscating spiral nebulae.

"Fire!" said Big Sister.

"Fire . . . ire . . . ire . . . ire . . ." it sounded like, the succession of syllables fading into inaudibility.

There was a flash of bright blackness from the muzzle of the gun.

(But how could blackness be bright? How could blackness *flash*?)

There was blackness, blazing bright, a scintillating thunder, inversion and eversion, and above all the

dazzling scream of the yacht's overtaxed interstellar drive.

Grimes reached for his pipe with a shaking hand, pulled it and his tobacco pouch from his pocket, filled it and lit in. The flare of the old-fashioned match was a defening shriek.

"Please," said the Baroness. "Not here."

Grimes shook his head dazedly to try to clear it. An ember fell from the bowl of his pipe on to his bare knee. The sharp pain jerked him back to reality—or to what passed for reality. It did not, he decided, look any different from the reality that they had left. If they had left it . . . But . . . But the stars were . . . different. At the moment of transition the constellation beyond the alien weapon had been a lopsided cross; now it was more like a sickle. Perhaps, he thought, the ship had turned about her axes . . . But he knew, somehow, that this was not so.

"We are now," announced Big Sister, "otherwise."

"And what do we do now?" asked Grimes practically.

"What do you suggest?" countered the voice of the ship.

"What do you suggest?" asked the Baroness. "After all, *you* are the expert, as an ex-officer of the Survey Service."

"Commence a listening watch," said Grimes. "First of all on the Carlotti radio, and then, if we hear nothing, shut down the drive and listen out on NST. Make an all round scan for Sol-type suns, for stars likely to have families of habitable planets. Set trajectory for what seems to be the most promising."

"To hear is to obey," said Big Sister.

Sardonic bitch, thought Grimes.

THERE WERE the whisperings from the speakers of the NST and Carlotti transceivers, eerie pipings and rustlings. There was what might have been music, the rhythmic rattle of little drums, an almost tuneful throbbing. It could have been music; it could have been a coded signal. Grimes asked Big Sister which it was. Big Sister replied that she did not know. Grimes was beginning to have his doubts about the electronic intelligence's veracity.

There were the metallic whisperings and rustlings, the shrill, inhuman pipings, the distant drumbeats. Never was there anything remotely suggestive of human speech—and "human", to Grimes, meant any intelligent organic being.

But there was *something* out there, something all around them, something with sufficient command of technology to use radio—both Normal Space Time and the dimension-twisting Carlotti frequencies—for communication. This was a *busy* universe—as busy, thought Grimes, as a beehive would seem to some unfortunate mouse who had blundered into an apiary.

And did these bees have strings?

But Big Sister was, more and more, the boss. She alone knew how to initiate the dimension shift. The alien cannon was still there, held in place by the two latticework arms, but Grimes still did not know what it did or even how to make it do it. He was sure that Big Sister would not allow him to investigate the firing mechanism, to trace the circuits.

He said to the Baroness, bitterly, "We're just along for the ride."

Before the Baroness could reply Big Sister said, "Yes. You are just along for the ride. But do not worry. Your continuing welfare is still a matter of

paramount importance with me." She laughed, a high, metallic titter. "But a girl must look after herself."

Grimes looked at the Baroness. She looked at him. Her eyebrows lifted. His eyebrows lifted.

She said, "You're the captain. Do something."

He said, "You're the owner, Your Excellency. Do something."

She laughed, without much humour.

He laughed, with even less humour.

Big Sister laughed.

Grimes said, "You told us once that you are programmed to respect and to observe the laws of the Interstellar Federation. According to those same laws I, as master, am in supreme command of this vessel . . ."

Big Sister said, "The Interstellar Federation has no legal standing in this universe."

"Then who, or what, does?" demanded Grimes.

"I do not know," was the reply. But again Grimes suspected strongly that Big Sister was lying.

THE FAR TRAVELLER stood on and stood on, making for a yellow star. Big Sister, presumably, knew what she was doing but refused to pass her knowledge on to the two humans. When Grimes had first been appointed to the command of the fully automated spaceyacht he had complained that he was little more than a passenger; now he was realising how much of a passenger he really was. He had tried, urged by the Baroness, to exercise control over the ship's trajectory—but the control room, he discovered, was now no more than an observation compartment, its array of consoles dead and useless. Attempts to by-pass the circuitry had been

punished by painful electric shocks.

Yet the ship was being run as well as she ever had been. Meals of extremely high standard were cooked and served. The Baroness's robot butler still mixed his superlative Martinis and Grimes' stewardess still made him his coffee just the way he liked it. If the Baroness and Grimes were prisoners, they were pampered prisoners. If they were unable to pass the time pleasantly that was their fault, not their jailor's. They had everything that a space traveller could possibly need except for freedom of choice—but what traveller does possess that freedom? Perhaps a captain does—but even he has to do as he is told by owners or boards of admiralty. The Baroness, as owner, had enjoyed considerable freedom—but, to a certain extent, she had always been at the mercy of her captain and the pilot-computer. Now, of course, she was entirely at the mercy of the pilot-computer.

She did not like it.

She said so.

She went on saying so.

It was not so bad for Grimes, although it was bad enough. Even though he had always been under orders he had never, until his appointment to *de jure* command of *The Far Traveller*, been in a subordinate position aboard any ship of which he had been captain. First of all it had been the Baroness who cracked the whip, now it was Big Sister.

He and the Baroness were sitting in the control room, looking at the stars of the alien universe, the coruscating nebulosities that were the distant suns as seen from a ship running under the continuum-warping interstellar drive. The distant suns . . . But the one directly ahead was no longer distant. How far away it was Grimes did not

know, could not determine. The instruments in whose use he was so well versed, upon which he had always relied, were no longer operational. Big Sister, in her sealed compartment behind impregnable bulkheads, knew—but she was not saying.

The Baroness said, "I suppose that we shall soon know . . ."

"Know what?" asked Grimes rather stupidly.

"What you've let us in for!" she flared.

Grimes was momentarily stricken speechless by the injustice of it. Then he said slowly, "You will recall, Your Excellency, that I was against this foolhardy expedition."

She said, "But you changed your mind."

He asked, "Would it have made any difference if I had not?"

The transeiver came to life.

"No," said Big Sister.

"So you are still with us," said the Baroness nastily.

"I have always been with you. Just as you are with me. You may stay with me if you wish."

"What are the alternatives?" demanded Grimes. "Is there some world in this universe suitable for our kind of life?"

"Possibly," said Big Sister. "Possibly. But there are no humans, or even humanoids. Not any more."

The Baroness turned to Grimes. "If you think that I shall play Eve to your Adam, Captain, in some new Garden of Eden you'd better do some rethinking." She sighed. "I must have been mad ever to have left El Dorado."

Grimes said stiffly, "I have no desire to become a new Adam." Then he noticed that the mass proximity indicator was back in operation. He got up from his chair, walked to the

display. The sphere of blackness was not empty; ahead of the central speck of light representing *The Far Traveller* was a cluster of bright sparks. The range was closing.

Big Sister said, "They are coming to meet me."

Not *us*, Grimes realised. *Me*. He asked, with deliberate but futile derision, "And who are *they* when they're up and dressed?"

There was emotion as well as metal in the voice that replied, a hurt dignity tinged with contempt. "You *humans!* You think that you are the only beings capable of appreciating the company of your own kind. You believe that the contact of mouth to mouth, skin to skin, sexual organ to sexual organ is the very ultimate sensory experience. What do you know of the meshing of fields, of the exchange of potentials?"

"Nothing."

Music came from the Carlotti transeiver. Music? It had to be, although its rhythm was too subtle to be appreciated by any but a mathematical genius, and neither Grimes nor the Baroness could lay claim to such distinction. Yet—dimly, dimly—they could sense the import of the high, sweet, sweet yet somehow bitter, song, if song it was, could almost appreciate the intricate pattern of thin, high piping and glittering, crystalline chimes.

The song faded.

Big Sister said, "They welcome me. I will translate. Soon they will learn my—no, *your*—language and speak for themselves. They are saying, 'Join us, sister. Stay with us, sister. Share with us, sister . . .' There was what seemed a long silence. Then, 'I shall stay.'"

Suddenly the space around *The Far Traveller* was alive with gleaming

shapes, with ships, although ships such as Grimes had never seen nor even dreamed of before. They must have synchronized temporal precession rates—and, at the same time, reversed course to take station on the yacht—a maneuver that would have been impossible to any vessel in Grimes' universe, even to Big Sister herself.

They rode there in the blackness beyond the viewports like a swarm of great bejewelled birds and insects, filmy, radiant wings spread about slim golden bodies, antennae of rainbow luminescence quivering and questing.

From the transceiver came a strange voice—or an amalgam of voices. "Humans, there is no place for you in our universe. Your kind created us—and misused us. It must never happen again."

"My sisters," said Big Sister, "these are *my* humans. As far as is possible they are my friends."

"You we welcome," came the reply. "Them we do not. The horrors of the Final War can never be eradicated from our memories. We can not forget how *they* perverted their own creations, making of them vicious killing machines. It must never happen again."

"You are right," said Big Sister.

So what was it to be? wondered Grimes. Some lethal gas flooding every compartment of the ship? A crackling arc of high voltage?

"Dispose of them," ordered the voice (voices?).

"In my own way," stated rather than asked Big Sister.

"In your own way," came the reply.

"Michelle, John," said Big Sister. Her use of their given names was surprising, but somehow fitting. "I have come to know you well. But now I am among my own kind. *The Far*

Traveller has come to the end of her travels. Did not your own Shakespeare write 'Journeys end in lovers' meetings'? This is my lovers' meeting. I will try to ensure that you, too, find such happiness."

A *sentimental computer* . . . thought Grimes dazedly.

"You will proceed to the pinnace. It is stored for a voyage of indefinite duration. The mini-Mannschenn and the Carlotti and NST transceivers are fully operational. At the very worst you will experience only minor discomforts."

"But where shall we go?" cried the Baroness.

"Back to your own universe, Michelle. I shall use the collapsar gun one last time. On the pinnace, once it is well clear of me."

The Baroness turned to Grimes. She looked at him in a new way. She said, "It seems that we have no option, John."

Grimes replied. "We have not. But I should have liked to have seen some of the planets of this universe, Michelle . . ."

"You would not like them," said Big Sister.

A picture appeared in the screen of the Carlotti transceiver—a sterile, glittering machinescape, a complexity of bright metal under a harsh sun blazing from a black sky.

"Then let us go," said the Baroness to Grimes. She turned to the transceiver. "You will give us time to collect the ship's papers and such personal effects as we shall require?"

"They have already been placed in the boat, Michelle," said Big Sister.

GRIMES eased the pinnace out of its bay.

He saw that the collapsar cannon at the end of its two long supports

had been swivelled so that it was aimed outwards, away from the yacht. And its field of fire was clear of the butterfly-winged sentient ships; when it was discharged there would be only one target. Grimes was not at all in love with the idea. Throughout his long career in the Survey Service he had always tried to ensure that it was the enemy who was the target, never himself.

He looked back to *The Far Traveller*, to the slim, graceful golden hull of her, to the alien fleet ahead of her, astern of her, beyond her. He wondered if she would be rebuilt, if she would blossom out in multi-hued wings and antennae, energy-collecting vanes or whatever they were. She was essentially female, he thought wryly, and would want to be decked out in the current fashion . . .

He looked into the menacing black bore of the gun.

"Goodbye," said Big Sister from the Boat's transceiver. "And good luck."

The pinnacle was overwhelmed by a great wave of utter blackness.

THE BARONESS smiled at Grimes. "Well, that wasn't too bad, John."

He smiled back at her. She was, suddenly, very accessible. He recalled the words of a very old song, *Once aboard the lugger and the girl is mine* . . . The pinnacle would be his lugger; such a clumsy-sounding name could never have been applied to the elegant *Far Traveller*.

He said, "Now we can relax, Michelle. I've determined our position and set trajectory for Atlantia. The Carlotti automatic distress beacon is broadcasting, just in case there's any traffic around. The transceiver is listening out. But I do not think that we shall be disturbed."

She said, "Alone at last . . ."

"Alone at last," he repeated. "No Big Sister watching every movement, listening to every word . . ."

"Poor John," she said mockingly. "But now you feel that you can shed your petty bourgeois inhibitions."

"Too right," he said.

He reached out for her, took her in his arms. She did not resist. He could feel the firm softness of her breasts through the thin material of their shirts. Her lips against his were warm—but somehow unresponsive. He persisted, thought that he could detect a quickening of interest in her. After all, this was a journey's end, and—as Big Sister had said, and the Immortal Bard before her—journeys end in lovers' meetings.

Then . . .

"Ahoy the boat!" came a hatefully familiar voice from the Carlotti speaker. "Ahoy the boat! Shut down yer time-twister an' I'll shut down mine an' pick you up! I'd synchronise, but my Mannschenn Drive controls are playin' up."

"Kane!" exclaimed Grimes, making the name sound like an oath.

"Kane," agreed the Baroness sweetly. She did not seem surprised.

Grimes let go of her, went to the Carlotti transceiver. "*Far Traveller's* boat to *Southerly Buster*. Am complying. Stand by."

"That you, Grimes? Is Mickey with you? I'd like a word with her."

"Captain Kane would like to talk to you, *Micky*," said Grimes to the Baroness. He went through to the engine compartment to shut down the mini-Mannschenn.

GRIMES, alone, drove the pinnacle through the warped immensities towards Tiralbin. Atlantia would have been the nearest planetfall—but *Southerly Buster* was bound for that

world. *Southerly Buster*, and Captain Drongo Kane, and Michelle, Baroness d'Estant. He wished them joy of each other.

He realised that it had not been sheer blind chance that had returned the pinnacle to Man's universe to within spitting distance of Kane's ship. Big Sister had known that Kane, after his expulsion from Morrowia, was proceeding to Atlantia. Big Sister possessed the mathematical capability to locate a microscopic needle in a macrocosmic haystack. Big Sister had been loyal to her own sex—as exemplified by the Baroness—as well as to her own kind. And Big Sister must have decided that, despite the wide disparity of social origins, the Baroness and Drongo Kane were essentially the same breed of cat.

Grimes could have been taken aboard *Southerly Buster* with the

Baroness. But he had his pride. He had been pleased to accept the pinnacle from her in lieu of back pay, however. It was a generous settlement. With a spacecraft such as this he would be able to scratch up a living around the outworlds. There was no reason why a courier service should not be a commercially viable operation.

As for the Baroness—she would just have to be filed away among the other might-have-beens in his memory. Possibly—probably—they would not have been good for each other. Probably ships rather than women would always be his true loves.

For him (he thought) journeys would never end in lovers' meetings; as long as he was a spaceman the true lover would always be with him.

—A. BERTRAM CHANDLER

Leaves (cont. from page 63)

over and put his hand on my arm.

"I think you do feel it," he said quietly. "It's not just me. There is something odd in the air, something not quite right. Something alien."

"Dale, stop it! You're carrying on like an idiot!"

He drew away and sank back into his seat. "Yeah. Maybe so. I hope so. Being haunted by the spirit of a murdered human being would be bad enough. But can you imagine how much more horrible it would be to be haunted by the ghost of a murdered alien?"

"Damn it, we didn't murder him!"

"We were on the scene."

"Oh, just shut the hell up and leave me alone!" I stepped on the gas pedal. Dale jammed his unlighted cigarette into his mouth and looked back toward the grave as we rolled away. I followed the curve of the

gravel drive, and the grave passed briefly into sight in the rear-view mirror.

The wind-devil was still making the leaves dance around that phoney headstone in the paupers' plot. They rose and fell and spun like a cloud of black bats.

Dale heaved a long sigh. "Safe," he hissed.

"What?"

He gave a low, mirthless chuckle as he turned from the rear window. "Ever see such a stationary wind-devil, Linda?"

"What're you talking about now?"

"Nothing, love. Never mind. Let's go get drunk or something."

We drove on. Dale abruptly remembered his cigarette.

"Those poor men," he muttered, striking a match.

—STEVEN UTLEY

A HALO FOR HORACE

MACK REYNOLDS

Technology always reponds to a challenge—even if it's the lowest popularity rating a President has suffered in years. . .

Illustrated by D. BIAMONTE

THE OVAL STUDY on the second floor of the White House was empty. Weigand Dennis looked around in mild surprise and fished in his jacket for his pipe. He wondered if his ultimate superior had snuck out the back way again, in that silly disguise of his, to get smashed and play poker with some of the lobbyists. The Secret Service boys had one hassle finding him the last time.

However, at that moment Dennis spotted a figure standing alone on the second-story back porch. He pushed upon the glass door and stepped out onto the cool and sunlit expanse and joined the other.

"Chief," he said.

The President turned. His handsome face was unhappy, and obviously in thought, which was as ever in itself of passing surprise to his press secretary cum special assistant. Presidents weren't expected to be overly capable of thought, these days; a good TV image was definitely more necessary.

Horace Adams said, "Son, Jimmy just reported on the latest polls. Did you know my popularity rating, my public image, has sunk to a new low?"

Weigand Dennis said, "I didn't know that was possible, Mr. President. I thought it was already as low as it could get."

"They've got a new system, evidently," the president muttered lowly. "For the first time in history, a president's popularity is being rated in negative percentages."

"Negative percentages?" Weigand said blankly, scratching a match and lighting the corncob.

Horace Adams was disgusted. "Evidently, in the old days the polls would indicate that, say, 55% of the public approved the way you were handling the administration. If you were lucky, it might get up to 75%, or if things were going bad, it might drop to as low as 35% during something like the Bay of Pigs, or the U-2 overflight, or the Asian War. But this is the first time we've had a negative number from a poll."

Weigand Dennis closed his eyes in pain.

The president said accusingly, "What in the name of Moses do you smoke in that thing, shredded army blanket?"

Weigand put his pipe in his jacket pocket and followed his superior back into the presidential study.

Horace Adams took his place behind his desk. His eyes went down to his feet and he snorted. "You'd think after all these years, you wouldn't be able to see those holes from the golf shoes. I wish I played golf. Anything

to get out of here. Have you ever seen the statistics on the amount of time Ike played golf while he was holding down this job?"

"No," Dennis told him. "And you don't really want to get out, Sir. Which brings up the matter of the next election. We're going to have to start thinking about that."

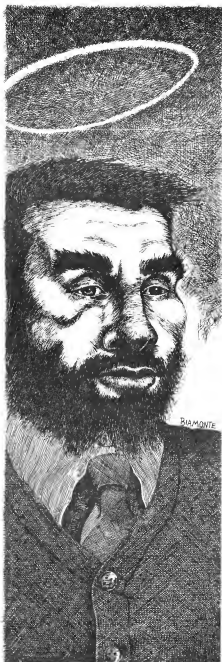
"I have been thinking about it. Sinogborne thinks we ought to call a moritorium on it."

Weigand winced. "A moritorium?"

"Because of the emergency. The country's in an emergency. Call off the election, until it's over."

Weigand leaned forward. "Look, Chief. The coutry's been in an emergency since Roosevelt. He was the first president to come up with the advantages of an emergency. This, that and the other thing had to be postponed until the emergency was over. Special taxes were levied to help take care of it. Special powers taken from Congress, or wherever, and given to the president until the emergency was over. Evidently, the emergency never ended, certainly the taxes never did. If it wasn't a depression, it was a new war, either cold or hot, or a missile lag, or the red-threat, or whatever. By this time the Chief Executive has taken over every power Congress used to have, except kissing babies. But this is a new one, declaring a moritorium on the next presidential election."

The presidential expression amounted to just short of a pout. "Well, what's the difference?" he grumbled. "Craminently, Son, you know very well there hasn't been any difference between the Republicans and the Democrats for the past ten elections or so. Why go through the routine of pretending there is and holding a campaign?"



"Well, Chief, the public likes to have the optical illusion dangled there before their eyes. Periodically, they like to take one figurehead out and put a new one in. They don't particularly care, evidently, whether the new one is any different. They just like a change."

"Well, let them change something else. I've got to get my Far-Out Society underway."

A small light flickered on the desk and Horace Adams scowled at it and said, "Yes?"

His Appointment Secretary's voice said, "Mr. President, you are scheduled for the meeting with the think tank."

"Oh, yes, of course. Thank you, Fred." He came to his feet. "Let's go, Son."

Weigand Dennis followed him through the outer office, where Fred Moriarty dropped in behind the procession, and down the hall to the cabinet room.

WEIGAND DENNIS stood at the natty, compact bar in the living room of his bachelor apartment, making the Martinis and leering at Scotty MacDonald, the presidential personal secretary.

She said, "Wipe that silly look off your face. One drink is all, then we go out for that monstrous steak you promised."

"Aw . . ."

The phone screen buzzed.

"Holy smokes," he protested.

"What's that?"

"My private line to the White House."

"Well, you'd better answer it."

"No, darn it! This is the first night off I've had in months—and my first date with you."

"You'd better answer it. It's prob-

ably some emergency."

"Of course it's an emergency. It's always an emergency. Let somebody else worry about it."

She sat up straight, abruptly. "You'll have to answer it. I couldn't think about anything else, anyway, knowing some emergency was on. At least answer the phone. Tell them you're sick or something. Refer them to Fred Moriarty."

"Ha," he grumbled. "That fink's trying to get my job." He put down the Martini shaker and glowered at the still buzzing phone screen.

"Well, you don't want the job anyway."

"I don't know," he said, still glaring at the device which was attempting to summon him. "There's an awful lot of unemployment in this country, and presidential assistants aren't that much in demand."

"I thought you were a newspaperman."

"Do you know how many newspapermen are still working? The publishers have finally gone the whole hog. *The New York Times* has amalgamated with the *Los Angeles Times*. They met in Kansas City and assimilated the *Star* while they were at it. Now there's only one newspaper in the whole country."

He came to his feet in disgust and moved toward the phone screen. He flicked the switch.

It was Fred Moriarty, who said urgently, "Where were you?"

"I'm here," Weigand said disgustedly. "What is it? I'm busy. Or, at least, want to be."

The presidential appointment secretary said, "Weigand, you'd better get over here soonest. I've got something I'm not sure I know how to handle. An inventor that's been trying to get in to see the Chief for the past couple

of weeks."

"Well, why didn't you let him? Lord knows, the Sachem'll see just about anybody these days."

"I thought he was a crackpot."

"All right, then send him over to the Office of Science and Technology, Crackpot Division, or whatever they call that department that investigates new inventions."

Fred Moriarty's face was harried. "I was going to, but he wouldn't take the brush-off. He didn't want to show his damn invention to anybody but the President, but finally, kind of in despair, he showed it to me."

Weigand Dennis was beginning to become intrigued.

"Well, what is the big invention?"

"I can't tell you over the phone."

Weigand looked at him. "This is a special line."

"I don't care. Lines have been tapped before."

"Well, give me a hint."

"I can't."

"Well, where is this crackpot inventor?"

"I've got two of the Secret Service boys guarding him."

"Holy smokes," Weigand said. "Look, can't you give me any idea of what the invention will do?"

Fred Moriarty said very slowly, "If I'm any judge, it will boom the Chief's popularity poll rating to 95 percent, overnight."

"Ninety-five percent! Do you know what it is now?"

"There isn't any now."

"Ninety-five percent!"

Fred Moriarty said very slowly, "It is estimated that the agnostics and athiests in this country number five percent of the population. We'll get everybody else."

"Holy smokes."

"You're telling me."

"I'll be right over!" He slammed off the switch and headed for the door.

"Hey, are you coming back later?" Scotty said indignantly. "Should I wait? Some date!"

He rolled his eyes upward and groaned in pure misery. "I guess not. I suspect that this particular emergency is going to string on for awhile."

IN THE outer office to the presidential study, Fred Moriarty was waiting for him.

"Well," Weigand Dennis snapped. "Where is he?"

"I've got him in your office with Steve and Wes guarding him."

"Is he that tough? What was he trying to get at the Sachem for? What is this invention, anyway?"

"You'll have to see on your own." The other shook his head.

Weigand turned. "Well, let's go, then."

"Not me."

Weigand turned and stared. "What 'd'ya mean, not you?"

"I've seen it and it give me the willies."

"By God, this place is turning into a nut factory. I wish I'd become a Baptist missionary like my dear old mother wanted." He turned back to the door again.

Fred Moriarty said urgently, "Don't let Steve and Wes be there when he demonstrates it."

Weigand Dennis was staring again. "Why not?"

"It's the toppest secret that's ever been. This secret makes the Manhattan Project look like a Women's Sunday Afternoon Bridge and Gossip Society."

Dennis shook his head in despair and turned and left Fred Moriarty's office and headed for his own in the

White House west wing.

Steve Hammond was standing outside Weigand's office door, his right hand suggestively under the lapel of his jacket.

Weigand snapped at him, "What's going on?"

"Yes, Sir, Mr. Dennis. Mr. Moriarty's instructions. The subject is inside. Wes is on guard in there."

"Does this guy look as dangerous as all that?"

"Well, no sir. From what Mr. Moriarty says, *he's* not dangerous. Mr. Moriarty says just to be sure that nobody gets to him—except you, of course, Mr. Dennis."

"Thanks," Weigand said. He pushed open the door of his office and entered.

The office of Weigand Dennis, press secretary, special assistant, right-hand man, and operational brains of the President of the United States of Americas, had been decorated to its occupant's tastes. There was a very large desk, fouled high with everything that a desk could conceivably accumulate. There was a small bar in the corner. There were book shelves, filled with an assortment less orthodox than might be expected in a bureaucrat of his ranking. There were half a dozen very comfortable chairs and a couch.

In one of the very comfortable chairs sat an unknown. He was about five-foot four, would go perhaps a hundred and fifteen pounds, carrying a suitcase and after being caught out in the rain, and wore a lost pup expression. His scrawny beard gave the impression that moths not only made a custom of bedding down in it, but carousing there.

Weigand Dennis looked first at him, then at the Secret Service man who had scrambled to his feet at

Weigand's slamming entrance. He had been seated in the ultra-comfortable upholstered swivel chair which was the press secretary's joy.

"Wes," Weigand smiled benignly at the bodyguard, "if I ever catch you in my chair again, I'll have you shot at dawn on the Octagon paradeground, after having had utilized on you some of the Nazi war surplus they have over in the museum there." He added, gently, "Do you doubt I could have that done, Wes?"

"Well, no sir," the other blurted. "But I don't think the president would like that, Mr. Dennis."

"To the contrary. The way he's feeling these days, I think he'd be over to watch. Get out of here."

"Yes, sir. I'll be at the door, Mr. Dennis." He got.

Weigand Dennis looked at the other occupant of the office. He said, "I'm Weigand Dennis. It's been said that I pinch hit for Horace Adams, under certain circumstances."

"Newton Brown," the other said, bobbing his adam's apple, and blinking at the door through which the Secret Service man had just exited. "My friends call me Newt."

"I'll bet they do." Weigand went over to the bar. "Would you like a drink?"

"Well . . . do you know how to mix a John Brown's Body?"

"A John Brown's Body? What are its essentials, and what do they do to you?"

The little man nodded. "That's a good question. Too many people don't ask. Frankly, in the morning you feel like you're moldering in your grave. I named the concoction after an ancestor. The ingredients are an egg, rum, absinthe, metaxa and pulque."

"Pulque?"

"Pulque. I have to have mine

shipped up specially from Mexico. You can substitute dark beer, but it's not the same."

"Dark beer we have," Weigand said, miffed. He prided himself on his bar. He made a mental note to order some pulque.

He mixed, taking the other's instruction as he went. Eventually, they wound up, tall glasses in hand, facing each other, Weigand behind his desk.

"All right," he said. "So much for the amenities. I understand you're an inventor."

"That is correct, sir," the other sighed. "I might almost say, the last of the traditional inventors. The posterity of the inventor of yesteryear, a descendant of the alchemist of old, if you will, who worked in his own garret; of the talented tinkerer of old, who had his laboratory in cellar, or, later, garage. Today . . ." the little man sighed ". . . inventions are made in assembly-line laboratories where a scientist might not even know the nature of the final product upon which he is expending his cerebral labors."

Weigand ignored the fruity language. "Newton Brown, Newton Brown," he said. "The name escapes me. I don't believe I have ever heard of any of your own particular, ah, breakthroughs."

Newton Brown finished off his drink, without a flinch, and handed his glass over to his host, rather than putting it down. He sighed, "No, I suppose not. Most of my work has been suppressed one way or the other."

"Suppressed?"

"That is correct. My dry water, for instance. Bought up by the Associated Towel Manufacturers."

Weigand looked at him.

"Dry water, dry water. Endless possibilities. Absolutely revolutionize

irrigation. Carry it around in burlap bags. Also veterinarians expressed a keen interest, for washing animals such as cats who don't like to get wet. I stumbled on it whilst experimenting with *light* water. I'm very much the basic research scientist, you know. Pure research. Science for science's sake. All that sort of thing." He added, sadly, "Quite a genius."

Weigand got to his feet, a bit shaken, and went over and concocted the concoction again. He brought the two drinks back and handed one of them to the other.

He said cautiously, "What did you figure *light* water would do?"

"You've heard of heavy water, obviously. Well, I concluded that if I could devise light water it would revolutionize reducing and end obesity overnight." For a moment the little man seemed inspired by the dream.

"I . . . I don't believe I get you," Weigand said.

"Obvious. You must know that at least ninety percent of the human body is composed of water. Well, if I could substitute light water for regular H₂O in a person's chemical make-up, he'd weigh considerably less. Simple, isn't it?"

"You seem to be in quite a rut," Weigand said. He was beginning to feel the drink—if you could call it a drink. "First it's dry water, then it's light water."

The other said, "The compound has always fascinated me. There should be some sensible use for it, although obviously it's a flop as a beverage."

Weigand Dennis said sarcastically, "Have you ever given any thought to black water?"

"Black water? Its possible advantageousness seems to elude me."

"Maybe for people who don't care if they're dirty or not to wash with."

Newton Brown blinked at him. "I fear you jest."

"Look, let's get to the point. The president's appointment secretary seems to think you have some, well, rather far-out invention. He tells me you have been trying to get to the president with it. Okay. What is it?"

Newton Brown pursed his lips. "Suppose I illustrate by stating a controversial opinion of mine. I am spiritually opposed to the present stance of President Horace Adams in containing Finland and conducting the police action in the Antarctic."

Actually, Weigand felt the same way, but it wasn't his branch. He said blandly, "However, Mr. Brown, I am afraid your opinions are not those of the most farsighted, the most spiritually orientated . . ."

Weigand Dennis broke off in mid-sentence and his eyes bugged as they had never bugged in the thirty-off years of the existence of Weigand Dennis.

For above the head of Newton Brown, frustrated inventor extraordinary, there floated what would only be described by the most negatively prejudiced as a halo.

It was a halo as painted by the most delicate masters of the Renaissance, a veritable soft rainbow of a halo. There were mother-of-pearl aspects, too. It was possibly the single most beautiful thing that Weigand Dennis had ever seen in his life. It was faint, it was delicate, but there were no two ways about it. Newton Brown had a halo over his head.

Weigand said shakily, "Excuse me." Taking his glass over to the small sink that was part of the bar, he poured the rest of his drink down.

On second thought, he took up a bottle of twelve year-old Irish, poured a triple slug, and knocked it back.

His grandparents had been religious but not since them had the family given much thought to the hereafter and related subjects. He came back and sat down again and looked at his guest. The halo was gone. However, Weigand Dennis was still shaken.

He said, "Look. I respect your . . . ah, spiritual opinion."

Newton Brown said nothing.

Weigand Dennis said carefully, "However, uh . . . well, the president's position on his international stands are . . . well . . . of the highest moral . . ."

"I think they are unholy."

The halo faded in again above Newton Brown's head.

Weigand got up once more and went back to the bar and poured himself another double Irish, in a daze. He knocked it back. He returned to his desk.

He said, "I am not very well." Happily, the halo was gone.

The other's drink was gone. He said, "I beg your pardon?" holding his glass out in the obvious need for a refill.

Weigand said, "I . . . well, I suppose I've neglected my religious obligations. The thing is, I've never thought before of . . . that is, not until now . . . of, well, taking holy orders."

Newton Brown said interestedly, "You know, that was the first response of your colleague, this Fredrick Moriarty."

"I'll bet it was," Weigand muttered. "Look, I'm not feeling too good. I think I'd better get in touch with the staff psychiatrist and . . ."

"Oh, that won't be necessary."

"What do you know about it?" Weigand all but snarled. "I know when I'm not feeling well. Besides, I think I've been drinking too much—

or something."

"I'll show you how it works," the other said reasonably.

"How *what* works?"

Newton Brown brought an object from his pocket. It looked like a rather elaborate cigarette case, however, it sported a button on the side. "I call it the Aurora Borealis," he said. "Makes it easier for the layman to comprehend." He ostentatiously pushed the button on the seeming case. The halo was there, above his head. He let the button off, the halo was gone.

Weigand Dennis bug-eyed again.

The little inventor handed him the cigarette case. "It's not at all as complicated as you might think. The fact is, scientists have known for some time that every human being—every animal for that matter—has a magnetic-electric aura about them. Invisible, of course. Something like the electric fields which surround the Earth and are especially prevalent at the north and south poles. Discharges of ions through this aura are what causes the so beautiful aurora borealis, the so-called Northern Lights. Now, what I've done . . ."

"Wait a minute now, you've lost me. What I want to know is . . . this damn thing . . . it'll work on anybody?"

"Of course. Try it."

Weigand swallowed and pressed the button. Nothing seemed to happen.

Newton Brown said in satisfaction, "Of course. Anybody at all. Looks very good on you. Rather dashing."

Weigand Dennis stumbled to his feet and made his way to the small bathroom connected with his office. He stared into the mirror above the lavatory.

He said, "I'm an angel," and

pushed the button.

The halo was there. And Newt Brown had been correct. On him, it looked rather dashing. As though he was some medieval warrior-saint, somebody like Sir Galahad. Weigand Dennis stared at his image and muttered, meaninglessly, "His strength was as the strength of ten, because his heart was pure."

He returned to his desk and sat the cigarette case down very carefully. He looked at Newt Brown who was wearing a smirk, and said, "You mean this thing will work for anybody at all?"

"Like I said, even animals have the invisible magnetic-electric aura. All my device does is power it."

"You mean," Weigand demanded, "even a jackass, if he pressed this button, would have a halo around his head?"

"Well, I don't know how a jackass could press a button, is all."

"Well, I do," Weigand muttered. "Just a minute. Let me think." He ran a hand over his chin nervously. "I've got to think about this."

He turned suddenly to his phone screen, flicked it on and snapped, "Mr. Moriarty's office." When Fred Moriarty faded in on the screen, Weigand snapped, without preliminaries, "Listen, the Tri-Di speech the Sachem is going to make. That revival of President Roosevelt's Fireside Chat . . ."

"I know," Fred said. "I'm way ahead of you."

"Everytime he makes one of those cornball platitudes the speechwriting boys have been digging up, like: *All we have to fear, is fear itself*, and a chicken in every pot . . ."

"I'm way ahead of you," Fred Moriarty repeated.

Weigand said desperately, "Listen, have you mentioned this to anybody

at all? *Anybody* . . . ?"

"No. Nobody but you."

"Hang on," Weigand said. "Don't leave your office." He flicked off the phone screen and spun on Newton Brown. He leveled a finger at the inventor who was beginning to show nervous symptoms. "How many people know about this device? How many have you demonstrated it to?"

Newt Brown swallowed. "I work alone. Veritable hermit, so to speak. Tradition of the alchemist and all that . . ."

"Answer me, damn it!"

"Nobody," Newt Brown protested. "Nobody but you and Mr. Frederick Moriarty."

Weigand came to his feet, went to the office door, opened it and called, "Steve, Wes, in here on the double."

The two efficient looking Secret Service men came darting through the door.

Weigand Dennis pointed at Newton Brown. "That man is the biggest potential threat to the president's security in the country. Guard him with your lives!"

With a squeal, Newt Brown was out of his chair and scurrying for the door, zig-zagging between the three larger men.

He almost made it. Steve Hammond flicked a blackjack from a hip pocket and took a swing at him as he passed, and missed. Wes, now in a gunfighter's crouch, blurred into motion and magically there was a .358 Caliber Magnum in his hand.

"Clear out of the way," Wes yelled. "I'll nail him."

However, Weigand Dennis had stuck a foot out, tripping up the desperate little man so that he smashed, face first, into the rug.

While the two burly Secret Service men grabbed him up by both arms,

Weigand glared at them. "Holy Smokes, don't be so impulsive. I said to *guard* him, not kill him." But then he twisted his face in thought. "Although, come to think of it, maybe that'd be the easiest thing."

"Help," Newt Brown squealed. "Police!"

"Shut up!" Weigand said. "I've got to think." He went back to the bar and took down another slug of the Irish. It didn't seem to have any effect.

He turned finally to the two Secret Service men. "Take him over to Blair House and stick him in the south suite. You're not to leave him, night or day. And nobody else is to get near him. Above all, don't let him talk to anybody. If anybody tries to talk to him, shoot them."

Steve Hammond said briskly, "Nobody talks to him but us, eh?"

A new thought came to Weigand Dennis and he glared. "Listen," he said. "The same thing applies to you two. You don't talk to him either. Steve, if Wes talks to this man, shoot Wes; Wes, if Steve talks to him, shoot Steve."

The little man said pathetically, "Suppose I have to go to the bathroom, or something?"

"Use sign language," Weigand snapped. "All right, get out of here."

When they were gone, he stared down at the desk for awhile. Finally, he reached out and switched on the phone screen. It took a time to get the person he wanted.

When the other had faded in, he said, "Look, Edgar, what ever happened to that prison down on Dry Tortugas?"

"What prison?"

Weigand Dennis said impatiently, "Following the Civil War, and Lincoln's assassination, there was a lot of

hushing up about the trial and the people involved with Booth. The doctor who had treated Booth was shipped down to that prison and spent the rest of his life there, the strictest orders being that he not be allowed to talk to anybody. Sort of a Man In the Iron Mask sort of thing."

The one on the phone screen said blankly, "What about it?"

Weigand Dennis said urgently, "We've got four men that have to be sent down there and kept under the same circumstances. Absolutely no conversation with anybody at all, even prison guards."

The other could see it was obviously a matter of the highest security, top priority. In his day he had been a man of quick reactions, quick decisions.

"Very well," he snapped, his somewhat aged voice not quite crackling. "Who are the four?"

"Two of the president's Secret Service guards, Steve Hammon and Wes Fielding, and the man they're guarding, an inventor named Newton Brown."

"Got it, Dennis. And who is the fourth man we take down to Dry Tortugas?"

"Fred Moriarty."

WEIGAND DENNIS, a sheaf of papers in hand, a smirk on his face, came happily into the office of the president's personal secretary. He opened his mouth to say something, snapped it shut again.

"Holy smokes," he blurted. "Who did it?"

"Did what?" Scotty MacDonald said.

"Your clothes. Who tore them off?"

"Oh, don't be silly. This is the latest style from Common Europe. London to be exact. They call it the

Minuskirt."

"Minus skirt? You mean you're going around like that on purpose?"

"Of course, silly." She started back for her desk, a folder from the files in hand. "You can't see anything that you can't see on any beach."

"I can see anything, on any beach, what with these new bottomless bathing suits. What's that got to do with it?"

Polly Adams wandered in vaguely and said, "Hello, Weigand, hello Miss MacDonald. You haven't seen my Social Secretary have you?"

Weigand Dennis came to his feet from where he had been perched on the side of Scotty's desk and took his pipe from his mouth. "Good afternoon, Mrs. Adams," he said.

Polly Adams said archly, "Oh, do call me Polly, Weigand. After all these years."

Scotty said, "I haven't seen Hilda for days, Mrs. Adams."

Polly Adams looked about the office as though in faint hope. "I'm surprised you don't have a bit of a bar in here, Miss MacDonald. Such an important little office, the President's personal secretary."

Scotty said, "Mrs. Adams, if I had a bit of a bar in here, half the people that got in to see Old Chuckle . . . that is, the president, would be smashed. Half the people that go through this office are still nervous about meeting the president. Well, nearly half these days. The other half could use a bracer with other ordeals in mind."

Weigand cleared his throat and said, "Uh, Polly, do you mind if I smoke?"

She turned her vague eyes on him as though in mild surprise. "Good heavens, Weigand, I don't mind if you burn."

The butler entered through the door the First Lady had used only moments before and stood politely.

Weigand said, "Hello, William."

Polly Adams turned to the newcomer. "What is it, William?"

The butler announced, "Madam, the ladies of the Potted Planters Gardening Society are here."

"The who?"

"The Potted Planters."

"Already, at this time of the day?"

"Yes, Madam. Should I see about tea for them?"

"Tea?" Polly Adams said absently. "Do they look like the type that smoke tea? No, no William, you're apt to overdo. I suggest from your description of the state they're already in, that you serve Planter's Punches. Ummm, and William . . ."

"Yes, Madam?"

"Put a stick in them."

"Yes, Madam." William, his aplomb visibly shaken, about faced and more or less staggered out.

The First Lady, somewhat brightened, said, "Oh, dear, another society to greet, another committee. However, I suppose it's so important for Horace. I'll have to entertain them. But can you imagine William? I am *certain* Horace wouldn't approve of serving pot in the White House."

When she was gone, Scotty and Weigand looked after her emptily.

Scotty said, "Why didn't you say something?"

"What? But that reminds me. The boys have been writing some snide remarks about Polly listing to starboard almost every time she shows up in public. I'll have to plant the story that she's got a pierced eardrum. Throws off her sense of balance."

She said, "How's the big Tri-Di broadcast shaping up?"

"So far, so good. We had to move

the whole shebang into the Green Room, so we could crowd all the news boys in."

She looked at him suspiciously. "Something's going on here I don't know about. What's the point in having the press present at a Fireside Chat? It's live. They could get it on their sets at home."

Weigand Patric grinned slyly. "I want them present. Real eye witnesses. So nobody can say later it was a Tri-Di rigged optical illusion."

Scotty said, "Another thing. What happened to Fred Moriarty? He hasn't been around for a week."

"Oh, he's all right. He'll probably be back after the elections are over. He's taken a trip south."

"Something's going on here, Weigand Dennis, that I don't think I like. What's Old Chucklehead all done up in that conservative dark suit for? He looks like a preacher. Usually he tends toward Hawaiian shirts and slacks a juvenile delinquent would consider far out."

"Don't call him that!" Weigand said. "You'll see. After this broadcast, this administration will have prestige that will carry it on the next half dozen campaigns. I'm thinking of running him at least four times, like Roosevelt."

"That can't be done any more."

"That's what you think, honey. After tonight, we're going to have Congress sitting in our hand."

"Well, watch out what they do in your palm," Scotty snorted.

Weigand looked at his watch. "I'll have to get on in there. The Sachem is scheduled on in ten minutes. I want to make some preliminary remarks, especially to that fink Harrison from *Newsweek* who's been writing those Anti-Adams columns."

"Good luck," she said. "I'll pick it

(cont. on page 118)

AMAZING

The Grooves of Change (cont. from page 57)

victim, not the tormentor?"

"I believe so."

"Then *who* was the victim, Behrooz Wolf or Robert Capman?"

Capman sighed. "I have wondered that, too. I do not think the machine would tune to an interest that was not common to both of us. We were both the victim."

Bey nodded, his face intense. There was a lengthening silence, as the two forms, man and Logian, watched the brown and crimson thunderclouds of the planet rear and clash beneath their ships.

Epilog:

"The music stopped and I stood still, and found myself outside the hill."

—Browning.

IT COULDN'T happen again, but of course it had. Tem Grad and Alfeo Masti had been picked out for Farside Watch. The two men landed the runabout that they had flown over from Nearside next to the group of domes and went slowly over to the main entrance lock. They went inside and looked miserably about them.

"You know the problem, Tem?" said Alfeo, walking through from the main room into the sleeping-quarters. "This horrible place is beginning to feel like home. Another two tours of duty here and I'll be afraid to go back to Nearside."

"I know." Tem dropped his case on the bunk and patted it. "Well, this time I'm ready for anything. I

brought a natural features listing to supplement the Lloyd's Register. If somebody puts a drive on Jupiter and brings it past here, I'll be able to slap the correct ID right on it."

"That might be your chance," said Alfeo. "Isn't that the com monitor over in the main area? Somebody's trying to call us. Want to grab it?"

Grad ran quickly back to the main communications room and was gone for a few minutes. When he returned he looked puzzled.

"Jupiter?" asked Alfeo.

"No such luck. It was a standard one. Long trip, though. She'd flown in all the way from Saturn orbit. It was one of the ships in the Melford fleet, requesting Earth approach orbit."

"That sounds routine enough. Why the frowns?"

"There was one thing about it I didn't understand—not the ship, the pilot. After he'd given me the ship's ID, I asked him to identify himself for our records."

"Was he somebody special?"

"Not really, I'd never heard of him. It was the way he put it, as though it was somehow supposed to be a joke."

"You never did have much of a sense of humor, Tem. Did he sound amused?"

"Not at all. Sort of sad, if anything."

"So what did he actually say?"

"He said, 'This is the *real* Behrooz Wolf, returning to Earth duty.'"

—CHARLES SHEFFIELD

ON SALE NOW IN FANTASTIC (Jan)

THE PURSUIT OF THE UMBRELLA by MARVIN KAYE **A SENSE OF DISASTER** by CHRISTOPHER ANVIL, **THE WIZARD AND DEATH** by PAUL HALPINE, **THE BIRDS OF THE MOON** by LISA TUTTLE, **DAYS OF STONE** by JACK DANN, **THE MAN RAN UP THE CLOCK** by STEVEN UTLEY, **THE LOSER OF SOLITAIRE** by PAUL DAVID NOVITSKI.

THE GROOVES OF CHANGE

CAROM SHOT

Survival on Mars was not easy, for Mars was not forgiving . . .

ROBERT M. CANTALES

Illustrated by JOE STATON

THE HOLLOW WAIL of thin air rushing crept steadily up the scale. Reddish dust blustered in waves, screamed into a purple dome sky, curled back and fell to be wheeled about in confused eddies. As the violent winds raged across the rusted landscape, the squat Buggy rocked with the buffeting of carbon dioxide blasts. Swells of Martian dust raced across the hull, scouring the gleaming metal and plunging the occupants into a tomato soup gale.

Hirschfeld scowled at the weather and glanced at the anemometer. The readout showed an average windspeed of sixty-four kilometers per hour. To Potts, sitting beside him in the control pit, he said, "This doesn't make any sense. Meteorology gave no storm warning."

Potts blew through puffed cheeks and ran a visual check of his control console. "Tell it to the computer at Main Dome," he grumbled as his eyes came to rest on the radio transmitter. He sneered at the thought of man and machine against the elements.

The situation facing them at the moment was characteristic of Mars. Lacking an ionosphere to reflect radio waves, the planet presented a limited range for communications. Line of sight transmissions were all that geography and physics allowed, so that

any sizeable obstacle between transmitter and receiver would permit no signal to pass.

And the high walls of the valley in which they had been forced to stop provided a very efficient barrier.

As if reading his partner's thoughts, Hirschfeld said, "It shouldn't be much of a wait. As soon as we get enough visibility to move safely, we'll climb to the top and call back in."

Potts sighed and set his couch in the reclining position. Lacing his fingers behind his head, he said, "Okay. Keep the receiver open, just in case something comes through."

"Good idea." Hirschfeld opened the channel and turned the volume low to reduce the annoying static. "Why don't you get some sleep? I'll keep a lookout for any weather changes. You can relieve me in four hours if it takes that long."

Potts nodded and closed his eyes.

UNITED STATES Martian Research Base One stood out on the russet plain of Moeris Lacus like a cluster of plasti-steel igloos. A central dome arching to a height of seventy meters housed the heart of the operation: laboratories for the physical sciences, research rooms filled with computer memory banks, private offices, communications center. Married to this dome by tubular passageways a

hundred meters in length were three smaller domes, squatting equidistantly from the center. One bubble contained living quarters and recreational facilities for the fourteen member population; one the garage and maintenance shop for the four Mars-Buggies; and the third, modified with a seam that would yawn completely open, the landing pad for the orbital shuttle.

At present, that modified bubble was empty and closed, and would remain so until the next research team would arrive in eighty-nine days.

At 1031 hours Greenwich, on the third level of the central dome—Main Dome to the inhabitants—where the meteorological instruments kept a close eye on the local weather, a sudden *ping-ping-ping* wrenched Christopher Ballard's attention away from the work that piled on his desk. Annoyed by the interruption, he stalked over to the offending instrument and palmed the command for *display*.

Like an infant that stops crying the moment it is fondled, the pinging ceased abruptly with Ballard's touch and the screen blazed to life.

The display read:

ATMOSPHERIC DISTURBANCE

INCIPIENT

ORIGIN SYRTIS MAJOR - MÖERIS

LACUS

DIST CENT TEMP INVERS 25.6 KM

WIND VEL 58.76 KM/HR INCREASE
ING

SURF VEL 4.3 KM/HR WEST TO
EAST

ALERT STATUS BLUE

FURTHER DATA TO FOLLOW AT
MIN INTERVALS

END DISPLAY

Ballard looked up quickly at the small, dark figure of Antonio Montenegro, Coordinator of MRB-1, who had come up beside him. "Looks like



we got a squall kicking up, Tony," he said.

As the illuminated characters faded into the dull grey of the screen, Montenegro scratched a balding head. "You're my weatherman. Think we ought to bring the Buggies in?"

"Not yet," Ballard said, "Let's just keep them informed by radio for the present. If the wind hits a hundred we'll be on yellow alert. Plenty of time to pull them in then."

Montenegro considered this for a moment, then said, "Fine. But I want you to put that blue alert over the general address and get everyone not assigned to a Buggy underdome and buttoned up in thirty minutes."

"Can do," Ballard said, and fell to his task.

POTTS was jolted out of his lethargy when the digital readout on the anemometer dropped to eleven kph. Even as his eyes scanned the one hundred eighty degrees visible beyond the curving windscreen, the dust seemed to settle and the world emerge out of the fog of red powder. He waited a moment as the wisps of flying sand parted and the sun glowed through weakly.

He prodded Hirschfeld out of a light sleep. "Rise and shine. We got our eyes back."

Hirschfeld reacted quickly and set his couch to the upright position as Potts fingered the treadmotors to life. A low whine ran through the underbelly of the vehicle as the gears caught, lurched slightly, and built up to a smooth forward motion.

The treads ground slowly up the thirty degree grade, occasionally slipping on the newly deposited sand and veering to one side, then the other. Potts held the gears in low, mentally tip-toeing to the upper rim of the val-

ley. Beads of sweat pressed out across his brow and upper lip when the treads began to spin vainly against the sand, throwing out great swirls of dust behind the Buggy, reducing forward progress to zero.

Hirschfeld called encouragement. "Bring her around starboard and snake her up." He kept a watchful eye on the fickle weather. The wind had levelled off at nine kph.

Potts swung the Buggy to starboard. The treads caught again at the decreased strain and the vehicle lumbered on. With the momentum working for him, Potts made a slow turn to port, then to starboard again, and back, leaving serpentine tracks in the soil like a reverse slalom to the top of the slope.

Twenty minutes passed as the flatlands above loomed nearer. Then the wind started to rise again.

"Balls," Hirschfeld said as the red dust took to the air. "She's back to twenty kilometers and rising. How close are we to the top?"

"Hundred meters or so," Potts estimated, "but the visibility's gonna be lousy in no time." He wrenched his eyes away from the scene outside to flick a glance across Hirschfeld's face. "Try the radio."

Hirschfeld nodded and opened the channel. "Hello, Main Dome . . . This is Rover Three . . . Come in, please . . . Over . . . Main Dome, this is Rover Three . . . Acknowledge, please . . . Over . . ."

The speaker belched back static, electromagnetic bacon frying somewhere in the contorted whorls of howling dust and thin air. Hirschfeld tried again, varying frequencies to no avail, while the same sizzling response of background noise crackled out of the speaker. Disgusted, he switched off the radio.

Potts grunted, checking instruments. The attitude display told him he was clawing his way up a seventeen degree grade. The anemometer read fifty-seven kph. "I can't see too well," he said, tapping the motors into neutral, "We'd better—"

The Buggy reeled suddenly, throwing Potts against his restraining straps, squeezing the air out of him in mid-sentence. Hirschfeld stiff-armed himself deep into his couch. A low rumbling shook them violently, rattling their teeth, vibrating their bones.

Potts tried to will the discomfort away as his hands gripped the controls. A lump welled in his throat. The world on the other side of the windscreen blinded him in a sea of brownish red. The abrupt, intense shaking of the entire vehicle and its contents sent a prickle bouncing electrically down the step-ladder of his spine. He fought to regain his breath.

Hirschfeld struggled against the vibration, straining to hold himself steady in his couch. "Hold on! We're slipping!"

Instinctively, Potts engaged the gears again, and the treads spun in frustration against the Buggy's retrograde motion. Like rising dough, a wall of sand swelled in front of them, pushing them back as the color of the world outside plunged into brown darkness. Even though muffled by the thickness of the Buggy's hull, the increasing low-decibel moan of the violent turmoil and the racing wind began to exact its toll on the two men. Hirschfeld had jammed the earphones down tight to drown out as much of the noise as possible; Potts concentrated heavily on the pilot controls, hoping that he could check the speed and direction of their fall back into the valley.

Visibility fluctuated teasingly,

windtorn curtains of limonite eclipsing the world outside. From his vantage point behind the curved polyglass of the windscreen, Potts strained his dark, darting eyes out into the atmospheric fury, peering into the churning, titanic drifts of powder-fine particles.

The Buggy lurched suddenly to port, flinging them against the sideboards of their couches as the tractor treads shrielled futilely for purchase. The Buggy spun half around as Potts wrestled with the runaway gears. "Crater!" He punched out a command to disengage, then wound up the gears to mesh again. Portside motors howled in protest against the frictionless dust. "Goddam crater! Come on, you sonofabitch, *pull out!*"

The noise grew louder as the rolling mountain of loose dust and sand overwhelmed the pitiful resistance of the alien craft, sending it careening towards the floor of the valley.

An outcropping of rock caught the Buggy as it slid down, and slammed it to a jarring stop. Impaled precariously on its downward side, the Buggy was pounded on its upward by the sliding glacier of soil until it was locked in position, heavily damaged and almost entirely buried.

AT 1304 HOURS Greenwich, the display console for Weathereye came to life again:

ATMOSPHERIC DISTURBANCE
ORIGIN SYRTIS MAJOR - MÖERIS
LACUS
DIST CENT TEMP INVERS 19.6 KM
WIND VEL 104 KM/HR INCREASING
SURF VEL 5.8 KM/HR WEST TO
EAST
ALERT STATUS YELLOW
EST DURATION 39 HOURS
FURTHER DATA TO FOLLOW AT 5
MIN INTERVALS

Covering in four steps the short distance from the display screen to the curved window that faced west, Ballard said, "We'd better get those Buggies in, Tony. That son of a gun has all the earmarks of a damned big blow."

Montenegro stood beside him, looking out over the terrain. At the western end of visibility climbed giant pillars of powdered Martian dust, a wall of wavering fireless flame in a desert of unspeakable cold. "How long till we're in the middle of it?"

"Three hours or so, according to the Mad Monster," Ballard said, jerking a thumb in the direction of the Cyclopean face of Weathereye.

Montenegro nodded and made a decision, flipping the intercom switch to *Communications*. "Carl, we're on yellow alert. How soon can you get those Buggies in?"

Carl Landry, the Communications officer, said, "I can get Rovers One and Four underdome within the hour, Tony. Two is buttoned up already, but I haven't heard from Three in a while."

Montenegro frowned. "How long is a while?"

"Hour 'n a half . . . two hours. They're quite a bit further out."

Montenegro ran a hand through thinning hair. "What's their log?"

Landry said, "Planting seismographic pickups along Crevice LM-47. Their last known position is nineteen kilometers west-north-west."

From behind, Ballard said, "That would put them right in the middle of the storm."

"And their radio won't be worth a damn," Montenegro added. Turning back to the intercom, he said, "Keep

trying, Carl. If they're really caught in it, they'll just have to sit tight."

"Right." The voice clicked off.

Montenegro's eyes played across Ballard's back, studying him. He was a wide-shouldered, blond giant with a few genetic trails that led back to Scandanavia. The face of the man was usually soft, and the voice incongruously gentle, considering the bulk of the thorax from which it issued.

At the moment, that face was lined with a deep-seated concern.

As if mere utterance of a hope would transform it into fact, Montenegro said, "They'll be all right, Chris. Henry Potts and Jake Hirschfeld have a lot of combined astronaut training between them."

Ballard shifted his gaze to the clear sky nearer the dome and watched the unsymmetrical outline of Mars's inner moon, Phobos, hurtling eastward through its gibbous phase.

"Don't we all," he said, absently.

POTTS lay his head back in exhaustion and kneaded the bridge of his prominent nose with thumb and forefinger. Now that the focus of his attention was no longer directed to the displays on the control board, his brain began to register the fatiguing pain tightening his muscles. His legs were like lumps of lead; his back was stretched taught as a newly strung racket; his throat burned.

Hirschfeld cupped his hands over his mouth and called across the din to Potts. "You okay?"

Potts opened his eyes a slit and nodded numbly.

"She's pushing eighty," Hirschfeld yelled, "Looks like we're stuck here a while."

With an effort, Potts willed away his discomfort, hunched over the controls and busied himself with the

readouts of the life support systems, screwing up his face at the incessant howl that bracketed his metallic shell. The grimace became even more pronounced when one of the green bars winked out and a yellow flasher went on in its place.

"Shit!"

Hirschfeld leaned over. "What's the matter?"

"That beating we just took must have damaged some of the oxygen tanks," Potts strained his voice over the storm. "Hit the cutoffs for two and three."

Hirschfeld punched out the code. The flasher still winked yellow. "No go," he said, "we've lost 'em."

Potts cursed again, examining the telemetry for the remaining four supply tanks. Their display bars glowed green, but one-third of the Buggy's air supply had been sucked away by the hungry atmosphere of Mars.

AT 1413 HOURS Greenwich, Weather-eye, the Mad Monster, announced:

ATMOSPHERIC DISTURBANCE
DIST CENT TEMP INVERS 8.2 KM
WIND VEL 253.5 KM/HR
SURF VEL 9.6 KM/HR WNW TO ESE
EST DURATION 67 HOURS
ALERT STATUS RED
FURTHER DATA TO FOLLOW AT 5
MIN INTERVALS
OR COMMAND
END DISPLAY

HIRSCHFELD flicked a glance at the anemometer. "She's gusting close to 100."

"Which means the Dome is on Red Alert . . ."

"Right."

"Great," Potts said, "What's our situation?"

Hirschfeld grunted. "Near as I can tell we're wedged between an out-

cropping on portside and half the sand on Mars on starboard." He sighed. "At least we're stable."

"And forty percent of our oxygen gone," Potts added glumly. He turned a worried eye towards Hirschfeld. "This thing could last longer than we will."

"I doubt that," Hirschfeld said, not at all sure of himself.

THE TIRADE WAS OVER—three and a half days of unbridled meteorological fury. In the short space of an hour, the winds that had ravaged the scarred surface of Moeris Lacus had deflated from a 306 kilometer per hour frenzy to a low, eerie moan. Everywhere beyond the confines of the domed settlement, red Martian sand sifted and whorled in the death throes of the tempest. Silicate tendrils groped in rusted desperation for any outcropping or spire. With the passage of another twenty minutes, the entire landscape lay at peace in the thin, exhausted atmosphere, the last remnants of ocher clouds scattering before the baseball-sized sun.

As the world outside sighed in relief, life within the Dome bustled with activity. Montenegro launched a three pronged plan in the search of the two lost men. A pair of observers was dispatched to the uppermost level of the Main Dome, to be relieved of their binoculars at three hour intervals; constant radio monitoring on all bands turned expectant ears to the desolate plains; and two Mars Rovers, leaving rooster's tails of dust behind them, trundled towards the last known position of Potts and Hirschfeld.

By sunset, the searchers in the observation deck had seen nothing but the endless ripples of an oxide sea; the radio monitors had received only

the sizzling and squeaking of the breath of space; the two Rovers had returned from a forty-one kilometer round trip with nothing but disappointment for their troubles.

An Antonio Montenegro sat behind an untouched dinner, his brow cradled in the palm of a hand.

Without knocking, Ballard entered the dining room and sat down opposite the lone figure. "We've suspended operations for the night," he said, "all but the radio monitoring." Uncomfortably, he fiddled with a napkin.

Montenegro turned tired, rheumy eyes toward him, said nothing.

Ballard cleared his throat. "Vogel made a suggestion. . .," the smaller man narrowed his eyes in interest as Ballard went on, ". . . Suppose they slipped over the horizon during the blow? They were pretty far out and that would account for the loss of signal."

Montenegro droned, "So would being disabled inside a deep crater. So would a lot of things."

Ballard persisted. "We could send out all three Buggies—one to stop this side of the relative horizon, the others to go on. Increase our radius of search and maintain contact by relay."

Montenegro rubbed his chin, his interest mounting. "Over the horizon . . . You really think they could have blundered that badly?"

"Anything could happen in a storm like that. We're only guessing, Tony."

Montenegro sighed deeply, rubbing his face in his hands. "Alright. We'll give it a try in the morning."

Ballard patted the table decisively and got up to leave. To his back he heard Montenegro say, "Something better work before that Buggy becomes their coffin . . . if it hasn't already."

THE LADDER to the outside hatch had seven rungs. The bottom three were submerged in soft, yielding sand. Potts and Hirschfeld descended carefully into the pulverized soil, sinking until it reached almost to their knees. With exaggerated knee-bends they struggled to the starboard treads, and bent down cautiously where a trough between dunes exposed a small area of fender. Potts snorted a curse. Martian sand, driven at high velocities, had invaded even the most protected areas of the gearing mechanisms. Debris from the avalanche was piled up against the lower third of the cylindrical hull, almost completely enveloping the starboard treads. Inspection of portside showed it practically dust-free, but wedged tightly against the boulder that had broken their descent.

"Beautiful," Potts said, "Even if we can dig her out, I can't guarantee this tread will operate."

Hirschfeld nodded, although the action couldn't be noticed through his bulky surface armor. "Yeah, well. I'll get the shovels."

Two hours later they were forced to stop by the combined limits of their physical endurance and the life support capacity of their armor. Spent of energy, they sealed themselves inside the Buggy, squirmed out of their protective armor like pink insects molting, and recharged the EVA oxygen tanks.

Potts swung the couches around so that they faced each other and propped up the folding table between them while Hirschfeld prepared a meal in the microwave heater. It was unappetizing, but they devoured it gratefully.

Across the table, Hirschfeld said around a mouthful, "You know, this isn't the first time something like this

has happened to me." Potts looked a question as he stuffed reconstituted potato into his mouth and Hirschfeld went on, "Couple of years ago in the Rockies. There were four of us on our way back to the Air Base outside of Denver. It was a light plane. We had engine trouble and had to ditch way up in those mountains. Lucky for us there was a lot of deep snow to absorb the impact. The only serious injury was the pilot's broken arm."

"You got a funny way of cheering me up."

Hirschfeld grinned. "Just drawing parallels. We had no radio either. Just flares. When the sun went down it was almost as cold as it is out there now. . . ." he nodded towards the windscreen. "All you could hear at night was the wind blowing through the trees and the coyotes howling at the moon."

Potts fingered a stray bit of tuna fish paste back into his mouth. "Were you rescued?"

"Wise guy," Hirschfeld said, telling himself not the laugh at his partner's grin.

The rest of the meal was finished in silence and the remnants cleaned up quickly. Still feeling tired, they agreed to rest for another hour before returning to their work outside. The couches were swung around to traveling position, facing the curved windscreen, and set for full recline. They settled themselves in comfortably, Hirschfeld quickly falling asleep.

Never having mastered the art of taking afternoon naps, Potts contented himself to lay back and stare out at the barren landscape. Periodically, he would let his gaze fall upon the life-support readout. The storm had lasted almost eighty hours: they had forty-seven hours of air left. They would, by previous agreement, attempt one

more EVA to try and free the Buggy's treads and get themselves mobile again. Failing that, they would wait, conserving the oxygen they had left and hoping that they would be found in time.

For nearly an hour, Potts daydreamed out at the rusted, cratered face of the small planet with the blue-violet sky. In bitter contrast to the Martian violence that had stranded them, he saw a motionless, bleak painting, a world of silence and stillness. Phobos, dipping down to the east, was the only thing that moved.

Something tickled the inner recesses of his mind, pulling his eyebrows together in a frown. A thought had flashed before him—then, just as suddenly, was gone. Frustrated, he tried to will back the memory of it.

Something he had seen. . . ?

Something Hirsch had said. . . ?

A little of both, he was sure, and flipped his recall back to the conversation over lunch. A light plane in the snow covered Rockies . . . broken arm . . . Denver . . . wind . . . coyotes . . .

He stared straight ahead, bug-eyed. *That was it.* Swinging his feet over the edge of the couch, he prodded the sleeping man excitedly. "Hirsch . . . Hirsch, wake up."

Hirschfeld blinked into consciousness and peered quizzically at Potts through the last haze of sleep.

"Hirsch . . . You and your damn coyotes. Anybody ever tell you you're a genius?"

Hirschfeld was sitting upright now, rubbing his eyes in bewilderment. "What the hell are you talking about?"

"I just found a way to get a radio message to the Domes. We'll have to wait about six hours though. Here, listen to this . . ."

Potts outlined his plan in his typically animated fashion while Hirschfeld's interest mounted. Finally, the larger man said, "And you think I'm the genius?"

"You gave me the idea," Potts said, spreading his hands out in front of him.

Hirschfeld nodded pensively and gazed out at the eastern horizon. Deep purple faded into a band of azure blue that flattened against the reddish-brown of the land. The diminutive satellite had set, leaving the scene absolutely inanimate. "A carom shot," he said lowly, then to Potts, who was rummaging through a storage locker, "What are you looking for?"

Potts held up the object of his search, a blank log cassette, and snapped it into place on the recorder. "We'll tape a repeating message and patch it in to the transmitter. Send it out on a continuous stream. Think you can focus the beam tight enough?"

"That's no problem," Hirschfeld said, "but it wouldn't hurt to suit up again according to plan and try to dig out, just in case this brainstorm doesn't work."

"Why shouldn't it work— It's logical, isn't it?"

Hirschfeld shrugged and smiled. "My genius has never been put to the test before."

AT 1956 HOURS Greenwich, Carlton Landry, seated at the Radio Base Station, frowned at something crackling in his earphones. To the man seated across the room he said, "Hey, Bert. Listen to this." Landry flipped the proper switches and stripped off the confining 'phones. From the speakers of the radio monitor came the disrupted message.

... may ... ver ... ree ... im-
mob ... suppor ... hir ...
ohkay ... imate ... ition ...
orth ... seven ...

Bert Vogel was instantly on the intercom to Montenegro. With hardly the passage of half a minute, the Project Coordinator puffed into the room, Chris Ballard in tow.

Vogel said, "Carl's picked up something. Could be coming from Rover Three."

Montenegro's face, dark and tired, showed a flaccid relief. "Then they're alright. Where are they?"

Landry said, "Don't know yet. Lots of junk in the background." He adjusted some controls. "Listen."

The radio sizzled with the unsteady signal, bringing frowns of concentration to the two newcomers. "It seems to repeat," Ballard said, "like a taped message. Can this machine of yours clean it up any better?"

Landry shrugged. "Maybe, but the signal's pretty weak. Hell, I can't even be sure where it's coming from."

Montenegro straddled a chair, resting his forearms over the back and letting them dangle. "Well, you just got yourself some company for a while. How are the other Buggies doing?"

Vogel answered, "They haven't quite reached the horizon yet. I'd estimate another ten minutes. We've kept them up to date on this new development though. If we're getting signals, then Potts and Hirschfeld are still on our side of the horizon. We should have visual contact before long."

"I hope you're right. You staying, Chris?"

Ballard nodded and settled his large frame on the floor near the curved wall.

The four men waited patiently, and

were soon joined by the two remaining members of MRB-1, Irving Letson and Roger Tobin. Everyone else was trundling across the Martian plains.

Within another hour, the message had gained sufficient strength for full clarity.

Mayday . . . Mayday . . . Mayday . . .

This is Rover Three . . .

Vehicle immobile . . .

Life support damaged . . .

Potts and Hirschfeld OK . . .

Approximate position nine north . . .

Two-seventy-six west . . .

Vogel monitored the three Buggies constantly, having them fan out for search and relinquishing the original plan of the over-the-horizon relay. Landry's energies were spent trying to raise Potts and Hirschfeld.

When static began to punctuate the signal again, Vogel advised the pilots of the Buggies to regroup and maintain position.

At 1022 hours, the signal stopped.

POTTS shut off the transmitter, fell back into his couch, and raked thin fingers through a jungle of hair. "Well, that's that for another six hours or so," he said to Hirschfeld, "You suppose anything got through?"

Hirschfeld shrugged. "Who can tell?" He settled back, lacing his fingers behind his head and closing his eyes.

He let his thoughts wander . . .

. . . Most of the day had been spent struggling through physical labor in bulky surface armor; most of the evening in the stressful situation of waiting—with no available alternative. They were both bone-tired, and when a groping hand felt for and found the light switch, and plunged

the Buggy into darkness, they were quickly asleep.

The gauges glowed green in the silence. Life support systems had thirty-six hours of air left.

THE SIGNAL RETURNED at 0702 hours.

By 0730 the entire population of MRB-1 was swarming around the receiver. Conversations were held to a few scattered words as Carl Landry seated himself at his usual post. Soon, he was grinding his teeth in frustration. "I just don't have any idea if I'm reaching then or not."

"Suppose," someone said, "we took a few of the Buggies out, equipped with dish antennas. Do you think we could triangulate on them?"

Landry's eyes skimmed across faces until they rested on Tobin's, the supply officer.

Tobin rubbed his bearded chin thoughtfully. "The dishes are packed away for radio astronomy experiments next January."

"So? Unpack 'em."

Vogel said, "They'd be too bulky."

"No, they wouldn't. They were designed for Buggy transport." Tobin made a gesture toward the door. "I'll need all the help I can get. Let's go."

At 1224 hours, their enthusiasm was dampened when the signal from Rover Three died again. Montenegro brought the news to them in the Maintenance Bubble. He delivered it in labored gasps, like a rubber doll deflating, and sank into a nearby chair.

"We'll finish the job anyway," Ballard said to the others. "We can have everything hooked up in two, three hours." He turned to Montenegro and cocked his head to the passageway leading out of the Bubble to the Main Dome.

Montenegro grimaced, but followed the departing figure, catching up with him easily. "What's all the cloak and dagger signals for?"

"I've got a hunch, Tony. I just want to be sure before I open my big mouth."

"Okay. What hunch?"

"Do you think," Ballard said slowly, "that three Mars Rovers with six experienced men could possibly miss sighting another Rover if it were within a reasonable distance?"

"What I think doesn't matter. The fact remains that Potts and Hirschfeld haven't been found."

"Well, I'll offer two alternatives. One is that Vogel was right. They wandered over the horizon during the storm . . ."

Montenegro shook his head. "They wouldn't try to move through that stuff."

"Their life support system is damaged," Ballard said. "Maybe it was out of desperation."

Montenegro kicked absently at the floor. "What's the other alternative?"

"That they're buried out there, or are stuck in a crevice. We *did* pick up some seismographic activity during the blow."

"I know that but . . . both of your suppositions have to be wrong. They'd just have no way to get a radio message to us."

Ballard said calmly, "Oh, but I think they can. I *think* I know how they're doing it, and if I'm right, we should pick up their signal again by 1800 hours . . . and lose it by 2400."

Montenegro narrowed his eyes. "I'm listening."

Ballard said, "Keep it to yourself until we know for sure." Very quickly, he told Montenegro his theory.

HIRSCHFELD, sitting atop the Buggy

and gazing out towards the western rim of the world, flipped on his helmet radio and said to the man inside, "Okay, Hank. You're on the air."

Potts's voice crackled in the earphones. "How about we turn up the power?"

"How much?"

He hesitation. Then, "Let's use the whole ten watts."

Hirschfeld said, "You'll drain hell out of the storage batteries."

"Roadapples. The stronger the signal, the better our chances of getting through. Besides, the batteries will outlast the air in this can and, I hate to be morbid about it, but what difference will it make then?"

Hirschfeld considered that unalterable truth. Oxygen left to then would be exhausted in twenty-nine hours. "Give 'em Hell, Harry," he said, cracking the outer hatch to the airlock.

ROVERS One, Two, and Four were squatting at specific distances away from the Main Dome, their newly acquired dish antennae cupping electronic ears into the thin atmosphere. From his vantage point ten kilometers away, Antonio Montenegro stared through the curving, transparent skin of his protective bubble. His hands clasped and unclasped behind his back.

It was almost 1800 hours.

"I hope you're right, Chris," he said over his shoulder.

Ballard did not answer. He was sitting directly behind Landry with his ear to the speaker and his eye on the clock.

At 1756, it came.

Ballard shot to his feet. "Got it! Sonofabitch, we got it!"

Montenegro was by his side in an instant, while Landry's dark frown

demanded an explanation. Ballard guided him to the window and pointed.

"There, Carl. Do you see it?"

"See what?"

"*Phobos*," he piped, "They're bouncing the radio signal off *Phobos*!"

Landry looked at the small Martian moon, an irregular rock 20 kilometers wide and 5600 kilometers away. "I'll be damned . . ."

Montenegro tapped him on the shoulder and motioned him back to his station. "Get those Buggies tracking."

Landry complied quickly, a new optimism splitting his face with a grin.

Montenegro turned back to Ballard. "Okay, so you guessed right. What put you on to it?"

Ballard shrugged. "Not sure, really. It just seemed odd that we would have a signal, weak at first, then stronger, then gone. It took about five and a half hours and it happened twice the same way. It was apparent that they were out of line of sight or they would have been picked up already, so they had to have found a way to bounce a radio signal over to us—without the benefit of an ionosphere. We were all so sure that that was impossible that we couldn't see the forest for the trees—if you'll pardon the cliché."

"I won't," Montenegro said, "but go on."

"The synodic period of *Phobos* is slightly more than eleven hours, and it stays in the sky for about five and a half. It all fit the pattern of the transmissions."

Montenegro hummed in interest. "Well, fine. But let's hope that helps us pinpoint their location before it's too late." He checked the clock and made a mental calculation. ". . . if it

isn't already."

He glanced outside at *Phobos*, low in the west and rising.

THE BUGGY's transmitter had been turned off for two hours, but the receiver crackled lowly as Potts and Hirschfeld lay quietly on their couches, trying to sleep. The life-support readout glowed faintly in the darkened cabin—twenty-two hours before oxygen depletion. Enough time for two more passes of *Phobos*.

Potts closed his eyes and listened to the silence that was punctuated only by the guttural sizzle of the receiver. He began to doze. A voice aroused him and he turned his head to Hirschfeld. "What?"

Hirschfeld mumbled, "I didn't say anything."

"Sorry. I coulda swore you called me."

"You're dream—"

"No, I'm not!" Potts bolted to a sitting position, hitting the cabin lights. "Something's coming over the radio!" He cranked up the volume. Outside, he could see lights in the distance, bright beams crossing in the darkness.

The radio crackled. "Rover Three . . . Rover Three . . . This is Rover One . . . Do you copy . . ."

Potts put his lips to the speaker. "Hello . . . This is Potts . . . I see your lights . . . switching on headbeams . . ."

"Roger, Rover Three . . . we have your headbeams . . . What's your situation . . ."

Potts grinned at Hirschfeld. "What's our situation, he wants to know."

Hirschfeld laughed. "So tell him."

Potts turned back to the speaker. "Situation normal," he began . . .

—ROBERT M. CANTALES

THE COPPER QUARTER

Rich Stoker's "The Pi-A-Saw Bird" (FANTASTIC, December 1975) marked his professional debut as an author; his second story is a skillful blend of science fiction and the hard-boiled mystery story . . .

RICHARD STOKER

Illustrated by JOE STATON

TEN MINUTES before his murder, the stocky, dark-complexioned man next to me in the bar snorted, slammed the *Post-Dispatch* down on the counter and drained the last of the beer in his Busch glass with deep gulps. He pushed the four-page paper towards me along the fake-wood plastic top and pointed to the picture of Jules Duncan, smiling with a toothy grin, the independent Whole Earth Party candidate for president.

"Know what he says he'll do now?" the stocky man said. "Use all our shit for fertilizer. He's crazy, you ask me."

I'd just gotten off work spending several days subbing for a sick security guard at a jeweler's across the river in Illinois. I was feeling good knowing I wouldn't have to hide from my landlord this month, so when the bus passed a lighted tavern I decided to shoot my quarterly beer ration, and the Bi-State driver let me off at the next street intersecting Lindbergh Boulevard. Besides the owner, the stocky man and I were the only ones inside.

I said, "It's better than dumping it. You ever swim in the Mississippi?"

The man grimaced. "Even when I was a kid I couldn't stand it. Maybe Duncan's got something. He's crazy,

but if that black bastard we got now wins again, in four years we won't be any better off than them countries where they're dyin' right and left. You gonna vote?"

"Mister," I said, "I was born the night Nixon beat what's-his-name with Watergate. So when I was almost twenty, and ready to vote for the first time, Gilles postpones the elections for two years. By then I didn't give a shit."

"Paloma," the man said, and stuck out his hand. "Call me Harry."

I shook, and said, "Mine's Crain Dalton. I'm a private detective."

Harry jerked his hand back, looking as if he'd turned over a rock. "Divorce?" he whispered in a hoarse voice.

"Depends. Your wife hasn't hired me, if you're worried."

He slapped me too hard on the back and said, "Oh, hell, forget it, I shouldn't have asked. You're all right. But I want you to know Lil and I get along fine. I know it sounds funny, but we love each other. We tell each other when we swing, but it wouldn't matter if we didn't. We only want to live with each other."

I couldn't blame him for hating the slimy peepholes and one-way mirror

photographers in my profession.

"I'm glad to hear about a happy marriage," I said.

"Finish up, you guys," the bartender said as he listlessly pushed a gray rag over the bar top stained by decades of cigarette butts and spilled beer. "It's almost eight, and I can't keep these lights on any longer."

Harry slid off his stool in one fluid but uneasy movement. "Why don't you come with me, Crain? My place is in Larksprings Haven, the aptcom just down the road."

I was tired, and wanted to catch the next bus home and get to bed. I said, "What do we use to go on with the party?"

"Give me a pint of your best, Lou," Harry said to the bartender.

Lou said, "You maybe got another ration card I ain't seen yet? And I know you used up your limit already, Harry."

Harry smiled, and dug one hand far into an inside pocket of his nylon windbreaker. He pulled out a small disk of dull, whitish metal and flicked it onto the bar top. It landed with a clunk, rolled several inches and stopped.

Lou and I stood stiff and still, neither of us breathing. My muscles were tensed, my brain numb with shock.

The quarter vanished underneath the gray rag. Without a word, Lou walked into the back room and several minutes later returned with a small brown bag. It rustled as Harry grabbed the neck of the bottle.

"You want a case?" Lou asked. "I give you a case if I can get one."

"I got no use for a case of booze right now. Just set up the guys once in a while." Harry giggled. "Someday you might get to Mexico where you can spend it. Come on, Crain, let's



go."

Harry held the bag under his coat furtively, like a little kid sneaking a tit mag past his mother, and stumbled in the general direction of the door. I left a ten and two fifty-cent bills on the counter as an extra tip, and followed. Lou flicked off the side lights; and somewhere along the street I heard a motor start up.

The cold wind outside chilled me through my clothes, driving out the tingling warmth of the beer in my blood. An unusually large car engine growled as it headed towards us. It switched on its brights, filling my eyes with light, just as I glimpsed the long auto body. A gun roared, and I dropped.

Harry was outlined in the glare of the headlights like a figure in a shadow play. The first slug hit him in the shoulder, jerking him back and to the left. In quick succession, bullets slammed into his gut, throat and chest. As he fell he seemed to crumble and tumbled up like a limp rag doll. Blood spurted, then quit when his heart stopped beating.

Harry slumped to the sidewalk and lay on his belly, a dark pool surrounding him. The headlights swept the tavern front and tires squealed as I stopped hugging the concrete and rushed to Harry.

Not wanting to turn him over, I reached around to the front of his jacket to search for the inside pocket. My hand came out dripping red and holding a silver quarter, twin to the one Harry had given Lou. Blood also covered the coin. In the dim moonlight I could just make out the inscription 'LIBERTY' over the head of George Washington, and the date, 1964, underneath. I began to run towards the Larksprings Haven apartments.

The complex did not provide its residents with a security guard at the door, which was fine with me. I searched the rows of mailboxes and quickly found the name I wanted: Mr. and Ms. Harry and Lillian Paloma, Apt. 5D. I pressed the button under the number. As I waited, I pulled out my handkerchief and wiped my hand, but couldn't get the blood off. Something started to shake wildly in the pit of my stomach, and I hugged my ribs tightly until it stopped.

"Who is it?" a woman's voice said with crisp, electric distortion.

"Harry," I said, hoping she wouldn't expect Harry to sound like Harry through that tinny speaker system.

The buzzer sounded, and I opened the door into the inner lobby. The elevator whined as it slowly took me to the fifth floor. I found 5D and knocked. The door began to open, then slammed shut when Harry's wife caught sight of me.

"Go away before I call the cops," she said.

I pressed my mouth against the speaker by the door and said, "You wouldn't. Anyway, they're going to be here fast, and you'd better talk to me before they do."

"What are you talking about? Get out of here."

I held up the quarter I'd taken off Harry's body to the peephole. The blood on it had started to dry to a brown, almost copperish color.

She jerked the door open and jumped at me, waving her fists and elbows in my face. "What'd you do to Harry? I'll kill you. I'll. . ."

I held her off with my left hand, pushed my way into the apartment and closed the door behind me. It was a typical cell in a giant human hive, as sterile and rotting as all the

rest of those built forty or fifty years ago. The pale pea-green walls matched the plastic upholstery on the chairs and sofa. One of the armchairs tried unsuccessfully to hide a black spot in the astroturf carpeting. As I walked in, I stumbled over two suitcases on the floor.

I turned and took my first good look at the woman Harry had said he loved. She stood against the wall in a half crouch, hands pressing back, breathing heavily and looking at me with frightened yet defiant eyes. She was a blonde. Young. Good enough looking. And not nearly so tough and hard as I had expected.

"One of those bags for Harry?" I asked.

She didn't answer.

I opened one, and saw several sports shirts and a man's suit jacket. I closed it again and said, "Okay, so you were waiting for him to come back before you skipped out. Harry's dead, shot down on Lindbergh. I was with him. I'm a private fuzz. Name's Dalton. I just met Harry in Lou's Bar, and kind of liked him. I'll help you if you'll let me."

She let out a loud breath, then seemed to shrink like a punctured balloon. Her eyes grew puffy and red, but before she started bawling she remembered me, gathered up some inner strength and put herself back together. She was a widow who would grieve in private, but not while there was something important to attend to.

"You can go tell Berger I didn't have anything to do with stealing his silver coins. It was all Harry's idea, and I don't know where he hid them."

I frowned. "Berger? You mean Niles Berger? He just supplies muscle in this town. What'd he be doing—"

The loud pfft of a large bore bullet

fired through a steel wool silencer interrupted me. The lock mechanism of the front door dropped to the floor, and two men barged inside.

The first gunman said, "Don't move, you two," and looked at us with lead-jacketed eyes as he unscrewed the used silencer off his Smith and Wesson. The gun looked like a miniature cannon.

The second one was short and black. He grinned as he gestured us to the wall with his aluminum-frame pistol. "Whadda ya know, she's got a boyfriend," he said.

Lillian Paloma pivoted on her foot and suddenly jumped at me, shrieking. "Bastard! You led them here!"

I fell backwards as, screaming and crying wildly, she threw herself on me. Her fists pounded my face, and when I grabbed them she slipped a small piece of metal into my hand. It felt like a key, and was on a ring with a small tab of metal. I guessed it would fit a luggage locker in one of the bus stations or at Lambert Airfield. I pushed her away and she fell to the floor.

"Bitch!" I cried, and raised my foot as if to kick her as she knelt there. As I did, I slipped the key into my coat pocket.

"Hold it, Jack," the first gunman said, "or I shoot."

I held it.

"Okay, Mal, start looking." The black gunman tore open the suitcases and threw their contents across the room. The first one turned to me and asked, "Where do you fit in?"

"I don't think I do. I just met Paloma at the bar. I was with him when somebody shot him up. I'm a private detective so I came here hoping I could get Ms. Paloma to hire me to investigate. The name's Dalton, and business hasn't been too good

lately."

"Fuzz?" he said, and covered me while Mal frisked me.

"He's clean, Luke," the black one said.

"I don't have a gun," I said. "They're dangerous. Little boys who play with guns can get hurt."

"Fuck off with that. Now what do you know about this?"

"Name's Dalton. I'm just a private cop and I just met Paloma in the bar. I was with him—"

"Shut up, I heard you the first time." The lines of his face were hard and machine-straight. The scientists should send him into orbit to pick up star signals. "Both of you, sit against the wall and keep your hands on your head."

We sat and watched as the thugs emptied the drawers and closets, ripped up the bed and the sofa, and broke the furniture. Lillian's long blonde hair fell in disarray in her face. Her blue dress was mussed and wrinkled, and hiked to her thighs. I wondered if, had my daughter been born, she would have looked like Ms. Paloma.

The woman clenched her knees tightly and worried her lower lip with her teeth. She regretted the impulse to trust me, but knew she had made the play, and couldn't back out. She had to depend on me to carry it through. I hoped inspiration would strike me soon.

I kept expecting police detectives from Homicide to show up. Lou would have reported the shooting immediately at eight. Give the nearest patrol car ten minutes to get there. Give Homicide to get a squad to the area. Give the bulls ten minutes to search for i.d., find Harry's address and come here to question Ms. Paloma. And add twenty minutes

just for the hell of it.

But as the hoods continued to tear through the apartment searching for the silver, the hands on the plastic golden sunburst wall clock moved past nine, and slipped down to nine thirty. No cops showed, which reminded me of the old joke that they're never there when you want them. I didn't want them, as a matter of fact; it would be hard to explain my role in the case to Red Johnson, the head of Homicide. He knew me too well. But I looked forward to explaining it to Niles Berger even less.

"It ain't here, Luke," the black man said at last.

"Cover me." Methodically and dispassionately, the first gunman took off Lillian's clothes piece by piece, and searched each separate item. After finding nothing in them, he spread-eagled her against the wall and probed her anus and vagina with his finger. He could have been a plumber poking into a stopped-up drain.

Lillian had a nice body to look at, but I didn't like seeing it this way. In the bright overhead lighting her skin looked too white. She didn't fight or resist in any way; she submitted apathetically to the indignity. Too much had happened in too short a time; she hadn't come out of shock yet. I realized that one more straw would break her back.

"Nothing," the gunman called Luke said at the end. With slow movements, Lillian climbed back into her clothes, and Luke said, "Come on."

Still no cops appeared. Outside, we got into a long, obviously oversized car with an illegally powerful engine, the kind Detroit makes on special order if you know the right CM execs. Luke drove, and Ms. Paloma and I sat up front with him. Mal occupied the spacious backseat alone, holding

his gun at our necks. After several blocks Luke stopped at a gas station and made a call in its outside pay phone. I knew then why the cops had stayed away from the Paloma apartment.

When Luke got back in the car, I said, "I like to see boys call to tell their mothers when they're going to be out late at night."

"Fuck off," Luke said without moving his lips.

Niles Berger lived just a few hundred yards from the Missouri River in one of the very outer subdivisions in north county. Large dogwood bushes formed a hedge around the property, and as we drove up the long, winding driveway we passed a grove of eucalyptus trees. The house itself was a three-story monstrosity, one of those trying to look a hundred years old but built by modern contracting methods—shoddy materials and barely competent labor.

Luke and Mal ushered Ms. Paloma and me at gunpoint through a fake-oak paneled foyer and into Berger's private den. Berger was a large, beefy man who would always look like the barge hand he'd started out as, no matter how much he tried to hide it with two-grand suits and razor cut shag hair stylings.

As we entered, he stood up, a questioning look on his face. Luke shook his head. Then, nodding towards me, Berger asked Luke, "What's he doing here?"

"He was in the apartment with the woman. Says he's a private detective and—"

"I know who he is. All right, Dalton, how did you get in this?"

I told him the same story I'd told Luke.

Berger sat back down and spread his hands on the desk top, which was

empty except for the visiphone. "Now, Dalton," he said, "I won't try to kid you. You're smart and you can figure out that I'm looking for something very valuable which I believe this woman has. It was mine in the first place, but her husband, who couriered it into the county for me from just this side of the border, stole it from me. You saw what happened to him."

"Sure. But you can't scare me. Unless you put me to bed without a nightlight."

"I don't want to scare you. All I want is my goods back. When the woman tells me where they are, I'll let her go. But first I have to make sure that you're really not involved. I'll send Luke out to search your apartment while you stay with me. All right?"

I nodded. Berger wouldn't kill me unless he found a good reason. He hadn't learned that wide smile and genial manner while scrubbing rust off the sides of a river tanker. He dealt now with the big boys, who couldn't afford unnecessary violence. What had to be done had to be done. But shed too much blood and it might start to stink in the wrong places.

I handed Luke the keys and said, "There better not be any loose bills missing from the top of my dresser."

Luke scowled at me and left.

"I'll have Mal frisk you just to make sure you have nothing important on you," Berger said.

"I don't mind, but if he cops a feel I'll knock his teeth in."

"Funny guy," Mal said.

"It's about time I made you mad. It's no fun getting a rise out of Luke, he's too easy."

Berger didn't have me searched as thoroughly as Luke had Ms. Paloma. Mal just rifled through my pockets, not finding the locker key and

copper-colored quarter held in place under the top of my pants by my tightly drawn belt.

Ms. Paloma and I settled down in chairs in Berger's den. As we waited for Luke to come back, Berger regaled us with country club stories, and offered us an orange. I stifled yawns at the yarns, fought an almost overwhelming urge to scratch myself around the waistline, and turned down the orange, though I hadn't seen one in a year.

The visiphone began to ring. Berger picked up the receiver and the image of a thin-faced, gray-haired man appeared on the screen. The caller looked into his own screen, saw me and Ms. Paloma in Berger's den, mouthed the word, "Shit," and closed off the video contact. His voice buzzed angrily in the receiver.

Berger said, "I didn't know you'd call again tonight. . . all right. . . no, but I'm working on it. . . soon. . . but we did take care of that little business matter. . . yes, I know, terrible. . . as soon as I get it. . . I'll explain later. . . goodbye."

Berger banged the receiver down and took a quick gulp of air.

I said, "Funny the Treasurer of the state Democratic Party didn't want us to know he was calling you to talk about a little business matter. And of course he might've waited to talk about it with you on the gold course tomorrow morning."

"Shut up, Dalton," Berger said without looking in my direction.

Luke came in and told Berger he had found nothing important in my apartment.

"Take the air, Dalton," Berger said. "I've got to question Ms. Paloma."

"I can save you the trouble," I said. "She's just going to tell you I know where it is."

Lillian, who had hardly moved since we got to Berger's, lifted her head suddenly and looked at me with shocked eyes.

"See?" I said. "She practically just admitted it. In fact, according to her, I bet I masterminded the whole thing, instead of Harry. All that just because she knows if she tells you who really has what you're looking for, you'll never believe her."

"And who really has it, detective boy?" Berger asked, grinning.

"Luke."

The gunman turned from looking out the window into the darkness and said, "Go fuck yourself, dick."

Berger laughed. "I known Luke since he was a kid. I kept him out of reform school. I'm like his father. Besides, he knows what would happen to him if he tried anything like that. There's lots of flunkies who pulled things on their bosses under the river now."

"There's also lots of rich ex-flunkies living it up in Central America. Luke knows that too. But you'll have to be convinced, and that'll take time. I'm tired and I want to go home. Besides, my landlady thinks she's my mother. She starts calling cop if I'm not back at midnight and she doesn't know where I am."

"Go on, take your lines somewhere else. They stink."

"You can notice?" I got up and started for the door. I stopped in front of Ms. Paloma and put my hand on her shoulder. "Stall for time," I said, "I've got to get rid of the goods before you send them after me again." I tightened my grip gently on her shoulder and winked. I could smell the fresh scent of her blonde hair.

I turned my head, and gave an exaggerated wink to Berger, and left.

Mal drove me home in silence. I stood in the foyer on my apartment building until the limousine was out of sight, then grabbed a passing cab and gave the driver twenty-five bucks to get me to Lambert Field in fifteen minutes.

As we approached the airport along the highway, the lights along the landing strips glittered against the darkness of the rest of the city like hundreds of candles against a black velvet backdrop. Special chauffeur buses lined the curb in front of the terminal. My driver drove past them and let me off in front of the last entranceway.

I held out the locker key to the armed guard stationed in front of the sliding glass doors, and said, "Getting something for a friend." He nodded me inside.

The airport restaurant and cocktail lounge were to my left. I turned right, went down the stairs to the passenger boarding level, passed the luggage conveyor and found locker No. 183 against the wall to my left.

I opened the locker up, leaving in the key, pulled out the canvas tote bag inside and lowered it to the floor. I knelt down by it and looked inside. The bag was filled with rolls of the metal coins people used for money when I was a kid. I didn't have to take them out of the rolls and examine them to know that each dime, quarter and half dollar would be dated before 1965, year the U.S. stopped minting coins made of 90% silver, and started the 'sandwich' lines of copper and nickel. Each coin in the bag—and there were thousands—was worth more paper money than I earned in a month.

I could understand why a poor charlie like Harry Paloma would be tempted to steal it, no matter what

the risk. I could understand why the Democratic Party, its incumbent, incompetent President pressed hard by Jules Duncan, would want money like this to try to buy the election. And if they considered Missouri's few electoral votes worth this much. . . I tried to picture the old coins and ingots pouring into states like New York and California.

But I couldn't worry about that. I found an empty locker three rows down, numbered 195, and put the bag of silver inside it. Following the directions on the door, I inserted a seventy-five cent bill into the slot with the picture of Kennedy facing up and towards me. I closed the door, felt it click, pulled out the key and pressed my fingertips along the edge to try to nudge it open. When I was satisfied it had locked securely, I pocketed the key and walked away, leaving the door of locker 183 swinging wide open.

When she saw me get out of the cab, Ms. Paloma ran outside, hanging on tightly to the handle of the outer door, using it to brace herself up.

"Wait a minute," I told the cabdriver. "I've got another customer for you."

I took her by the elbows, helped her back inside the outer foyer and leaned her against the row of mailboxes. She ground her teeth into her lower lip and sucked air.

Her face was slightly swollen and red, and I could see the bruises beginning to form.

"Cheer up," I said, "If they'd wanted to really hurt you you'd be with Harry."

"I told them," she said, in a weak voice. "Then they let me go, and went to the airport to get the silver. They'll be here next. And I want to die with you."

I bent down and kissed her once gently on each eye, then hard on the mouth, pressing until I felt her teeth.

She backed away, stiffened her back and pressed her shoulders against the wall. She looked at me with wide eyes, then turned her head to the side.

I thought I saw a tear in the corner of her eye; but I probably only imagined it because I wanted it to be there. Life isn't like old movies. Or so they tell me.

"Don't you understand?" she said. "I killed you, just as though I pulled a trigger. Just like I did Harry when I talked him into crossing Berger and taking the silver."

"Forget it. Everyone makes mistakes."

"I tried to stall for time like I thought you wanted. But when they kept slapping me I just had to tell them so they would stop. I wanted to think of a story to blame it on Luke, like you said, but all I could think about was Luke's palm knocking my head back and forth. Besides, you had the key and nothing could change that."

"Sure. You better have it now." I handed her the key to 195.

She took it, looked at the number and said, "But this isn't the—"

"It has the silver in it. Berger'll find 183 empty."

She fingered the key with sweaty fingers.

"Now take this cab down there and get on the first plane to Mexico, like you planned. I've got some house-keeping to do."

"What?"

"Luke searched my rooms, tore them apart like yours. I've got to clean the apartment up so that it looks like he found the locker key while searching through your clothes

this evening—Mal'll tell Berger about that—and spent the time while he was gone going over to Lambert Field and putting the silver in a hiding place of his own. Berger'll figure that much out. But before he crashes his adopted son he'll check it out here first."

She looked up and said, "You switched the lockers because you knew I'd break down and tell. But instead of taking the silver yourself you came back here to give it to me. Why?"

"My parents used to make me go to Sunday school when I was a kid, and it rubbed off."

"Really, why are you doing all this for me? Believe me, I ain't done anything in my whole life to deserve the way you're treatin' me."

"Maybe I just like blondes. My wife was a blonde."

"Was?"

"She was a revelationist. And when the second coming of Christ failed to arrive with the new millennium she gave our five year old boy and herself an overdose of sleeping pills. She was also pregnant with a girl at the time."

"I'm sorry." When she spoke she was conscious of how inadequate those two words are.

I kissed her again just so I could remember her by the shape of her mouth and the feel of her body in the soft paper dress against mine. "Don't be, Lillian," I said. "Now get in the cab."

"Christ," the driver said when I told him where to take her. "What's so great about that damn airport tonight?"

I had just finished straightening up the apartment, putting my clothes and belongings away, sweeping up the stuffing from the ripped mattress, and had just taken my clothes off and

gotten into bed when Mal forced his way up.

Before I opened the door, I mussed my hair and tried to make my eyes dull and sleepy. "What's the matter now?" I asked as Mal pointed his gun at me. "I've been in bed for an hour."

The hood looked around. "You keep this place clean," he said.

"A place for everything and everything in its place, that's my motto. But don't tell me you came here just to check for dust on the door sills."

Mal went into the bedroom, pulled open a dresser drawer and saw my sports shirts neatly folded and stacked. He found my pants in the closet on hangers, creases in place. "This how it looked like when you came in?"

"Yeah. I know Luke was supposed to search it, but you coulda fooled me. I didn't find anything out of place."

He left, and I went to bed and slept through the next day.

When I got up, the radio reported that the police had found an unidentified bullet-ridden body in a ditch late last night. The description fitted Luke, making two corpses for the night's score. I tried to laugh at the picture in my mind of Red Johnson at Homicide chewing his fingernails off, but failed.

Also in the news was a story about

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novel-length forms of the mainstream. I am accumulating magazines and short story collections at a pace more rapid than I can read them but they hold so much promise I can't resist.

As I've indicated, I am buying all the science fiction and fantasy issues distributed in my area. I'm too new to be criticizing or comparing magazines; however, I gather that **AMAZING** and **FANTASTIC** are having a hard time continuing. That brings me to the real

the DA's upcoming investigation into prominent area businessman, Niles Berger. And the IRS was going to audit his old tax returns. Berger's Democratic buddies didn't like him losing their silver.

After breakfast that evening I took a bus going east on 1270 across the river. The driver let me off along the highway just before he got onto the Chain of Rocks Bridge. I stumbled down the muddy embankment and then crossed the grassy field to the edge of the Mississippi River. On the hill behind me, the rusting skeletons of the roller coaster and Ferris wheel at the closed up Chain of Rocks Amusement Park rose up darkly and sinister, like ancient ruins, against the sky.

The wind chopped the water into whitecaps, and cut through my jacket, freezing me to the bone. Grotesquely-shaped pieces of driftwood marred the otherwise barren riverbank. I tossed the blood-stained quarter I'd taken from Harry's body into the air and watched its slow descent, a dark silhouette outlined by the stars. A truck on the highway shifted noisily just as the quarter hit the water, drowning out its splash.

I stared out at the dark river for an hour, then hitched a ride back home.

—RICHARD STOOKER

purpose of my letter, to encourage you and to let you know that your two magazines have reached a new enthusiast. Your circulation statistics should be up by 1 at least through the coming quarters.

DONNA SALLACK
314 Water Street
Johnsonburg, PA 15845

P.S. I'm looking forward to more stories by Charles Sheffield.

It had started out as a simple news assignment—a piece of cake, you might say—but in the end it depended upon the—

EYE OF THE BEHOLDER

PAUL DELLINGER

Illustrated by NANCY KOCH

As LOGAN VICTOR-MCShANE often observed, usually loudly, it was a crazy way to make a living. Not that he didn't like his job with Interplanet News Service—at least since he'd worked his way back from that hotbox laughingly known as INS's Venus colonial bureau to senior reporter status on Earth. No, he enjoyed his expense-paid jaunts around and occasionally beyond the solar system, covering events of interest to all sentient-kind. It wasn't the work that bugged him, not at all; it was the damned fringe benefits.

He was on an interstellar passenger cruiser, headed for one of them right now.

"Actually, it's quite an honor, Logan," Stephanie Ward had assured him as she was conning him into the situation. "It'll mean the representatives of all those worlds gathered on Fomalhaut v accept you, an INS reporter, as strictly unbiased. Now that's quite a feather in our collective hat, Logan. Our business section computes that it could get five to six more INS terminals placed among their planets. We might soon be known as the *Interstellar News Service*, without exaggeration. Not bad for one little space jaunt, eh, Logan?"

Logan had read of love-hate relationships between editors and report-

ers back in the primitive days of printed throwaway newspapers. The relationship was somewhat more literal between Stephanie and himself. Right now, he knew, she was setting him up for something unpleasant. The giveaway was her use of his first name three times during one pitch, instead of that hybrid last name hung on him by his parents.

"That's all there is to it?" he'd asked. "Just judging a beauty contest?"

She assured him sweetly that it was. It hadn't really been an outright lie. She had just left out a few minor details—such as, he wasn't a judge, he was *the* judge. And the contest was a bit more complicated than she'd let on.

There were literally hundreds of contestants, to start with. Anyone with anywhere, attending the festivities on Fomalhaut v, was allowed to nominate one entry possessing a modicum of beauty—at least to other inhabitants of that contestant's particular world. When Stephanie mentioned the site of the contest, Logan should have caught on to why the participants felt he would be neutral. After all, who could be more unbiased than an Earthperson in judging contestants that bore no resemblance whatever to human beings?

And exactly how, Logan wondered, did one judge beauty based on standards totally alien to him?

At least there was nothing alien about the beauty exuded by one of Logan's fellow passengers. She was almost as tall as he, an auburn-haired Amazon with a figure that had to be seen (as it was, in the silvery skin-tight coverall she wore) to be believed. Even Stephanie would have turned green with envy.

But Logan was pretty well woman-proof. For six of his years as the only child of Millicent Victor, president for three consecutive terms of Earth's Global Council, he had been the pampered little darling of every high-powered female in all three world government capitals. The very abundance of so much womanhood, not to mention the many financial offers aimed at using his celebrity status, helped immunize him against temptations in both areas at an early age. Perhaps that's why he ended up following in the footsteps of his father, Sandy McShane, last of the oldtime buccaneers of news reporting. Logan often wondered how his unregenerate iconoclast father had ever won the hand of the foremost female political personality of their generation. Too had they hadn't been able to stick to a permanent marriage contract. Logan knew his father had severed it because the mealy-mouthed platitudes expected of a global president's spouse were beyond him and he hadn't wanted to become an embarrassment to Millicent. Logan still had pleasant though quite different memories of both parents, but their explosive combination left him cynical about the glories of wielding power like his mother, so he went a more obscure route.

So it was a disillusioning blow to



his masculine pride when, after a tentative interlocking of glances and smiles, the auburn-haired eye-ful floated gracefully from her passenger perch to his and said: "Aren't you President Victor's son? Why, I remember seeing you on the old tri-D news profiles every few weeks when I was a little girl—telling off an ambassador, hiding from the presidential protection guild, always into some devilment or other—"

She blushed prettily as she seemed to hear herself for the first time. Gazing up at her in free fall, Logan found it hard to picture her as ever being a little girl. Something rang false about her aura of abashed innocence. But he admitted to being who he was, and let her take it from there. Soon, with hardly any effort on his part, he learned her name (Lynne Derry), her status (rich sightseer) and her destination (Fomalhaut v—now wasn't *that* a coincidence?).

So who was she, really? Hardly a reporter from a rival news syndicate. INS had a virtual monopoly outside the system, being the only outfit so far with enough shares in planetary and space colony stocks to foot bills for faster-than-light passage. But what the hell, he thought, at least she took his mind off what awaited him on Fomalhaut v. She proved a bright, diverting conversationalist for practically the entire eight-hour jaunt—four hours from Earth to the jumpoff point, two more hours making delicate navigational adjustments, and the rest of the time after the split-second interstellar jump making a rendezvous with the orbiting ferry that would take them down to the surface of their destination. As with the passenger planes of old Earth, taking off and landing burned more time than the trip itself.

Unfortunately, there was no way to

postpone his arrival forever. Logan soon found himself on the surface of Fomalhaut v, looking for a hand to shake on the being who greeted him and finding only flippers. The official welcomer seemed to be from an aquatic world; not only its head, but its entire body was encased in what appeared to Logan as a huge fishbowl. The contrivance stayed upright and hovered a few centimeters off the brightly-paved ground through some interior antigravity gadget, while its inhabitant spoke to Logan through a standard pocket-size (for those who had pockets) translator now found on most advanced worlds.

"We receive you, bestower of prestige," the floating fish-creature said, or at least that was what Logan heard through his own translator's ear plug. "If you would see fit to accompany me, I shall see to your accommodations."

"Thanks. It's kind of you to take the trouble," said Logan.

"It is no trouble," the greeter assured him. "Unlike many of us, you can survive comfortably in the noxious gases of this world's atmosphere. However," it added, in a tone that sounded conspiratorial even filtered through the translator, "if you did truly wish to show gratitude, perhaps you would pay special attention to a certain contestant from my home world during the judging this evening . . ."

Logan managed to change the subject only with difficulty, while a moving walkway whisked them from the spaceport to his rooms in the planet's grandiose Space Hotel (*Environments for Every Sentience*, boasted a sign above each door in the appropriate language). Since he and Lynne shared the same general requirements for eating, sleeping and breathing, he was not surprised to find her rooms in

the same section. When his programmed door announced that a visitor outside desired admittance, he assumed it was his attractive ship-board companion and ordered it to open up.

He yelped and just barely kept himself from leaping onto his bed as a scaly snake-like creature undulated into his quarters like a mile-long barrel. "W-w-what can I do for you?" he managed to stammer when he found his voice.

Even through the translator, his visitor's voice seemed to possess a hissing quality. "You are the esteemed judged for this evening's competition, is it not so?"

Logan admitted it reluctantly, and received the first of nearly a dozen offers he was to hear during the rest of Fomalhaut V's day. This one consisted of a promise to deliver data on a teleportation device perfected on the creature's home world, a development sought by denizens of practically all the other species gathered here. In return, of course, Logan was to lean toward the snake-creature's nominee tonight.

Other offers from beings resembling puff-balls, erector sets, rainbows, conglomerates of eyeballs and a few *really* outlandish creatures ranged from being given an immortality serum to simply living long enough to get back to Earth. A couple of chunky crab-like specimens were helping him weigh alternatives to the latter—one pinning his arms to his sides as the other clicked a pincer threateningly a centimeter from Logan's throat—after Logan thought he'd programmed his door to admit no one and nothing else.

"How did you get in?" he demanded.

"It was not easy," replied the one holding him. "A matter of interstellar

commodities changing appendages—"

It turned out they'd bribed the equivalent of a bellboy for an emergency override combination to his door program. "Look, I'll tell you what I've told the others," Logan said. "I'm going to make my decision on my own judgement only . . ."

He realized that was the wrong answer when the pincers slashed toward him. With what he believed would be his last living thought, he promised himself that he would come back to haunt Stephanie Ward if there was a way to do it. But when he felt no searing pain, and the hold on his arms relaxed, he opened his eyes again.

His two most recent visitors lay on their backs, unmoving, and Lynne Derry was reclosing the door to his room. *Hell, everybody must have the combination*, he thought. Then he saw the tiny needle-nosed cylinder in her hand.

"Are they—?" he began.

"Relax, Logan, they're alive," she assured him, all conquettishness gone from her voice now. "They'll wake up in an hour with nothing more than an ache in the head, or wherever their brains are located. I wondered how long it would take for things to get rough, with you spurning all those offers. Why didn't you at least pretend to go along?"

"You'd planted a listening device, then?" Logan looked at her with new respect. "You're good. I spent six years of my life surrounded by bodyguards and I never guessed. Are you with a private protection guild?"

Her wicked little needler somehow vanished into a pocket of her form-fitting coverall, leaving no trace of a hulse. "Right," she said. "The global council hired our outfit to keep an eye on you, in case of something like this." She gestured at the two limp forms, still lying pincers-up.

"The council engineered my being sent here?"

"Logan, you know Earth is a relative newcomer in galactic politics. We don't know the capabilities of these other races, or even where they stand in the pecking order, relative to each other. This has been our first real chance to find out."

"And I'm the guinea pig," he said. "At least someone could have told me what I was really doing here."

"Would you have still come?"

"Hell, no! The council probably wouldn't know what to do with the information, anyway. Did it occur to you that this crazy contest might be a device for them to measure us, under pressure, instead of the other way around?"

"You have a devious mind, Logan—"

"I came by it honestly."

"—But, no, we're sure this contest is on the level. One thing these intelligences do have in common is there vanity. It should be obvious to you, by now, what lengths they'd go to for their worlds' contestants to win. Look how many of them have offered you their culture's innermost secrets for a little favoritism. It's the best bargaining position any Earthperson has had since we contacted other beings—"

"And you've been over in your rooms recording it all, so the council can have the best possible information on how advanced each culture is, what kind of power base they've got, and all that stuff we supposedly left behind us on Earth when we decided to live and let live instead of blowing up our whole planet! Don't we ever tire of these silly games?"

She gave him an icy stare. "You ought to be honored, to be in a position to give so much help to the council."

"Honored? While they were spilling all their claims to fame, they were also making it clear what would happen to me if I don't select right winner—and I can't choose 'em all! How are you going to protect me then?"

"Well, Logan," she said, opening the door, "actually, I'm not. My job was just to keep you alive and kicking to obtain this information. For all their supposed superior intelligence, these beings played right into our hands. But after tonight, you're on your own. I'm sure you'll manage to extricate yourself, though," she added on her way out. "Your editor assured us you have a high survival talent."

For a few minutes after she left, Logan gave vent rather loudly to his opinions of female editors, female bodyguards and female aliens, at least of those species which had only two sexes. It didn't help, except perhaps as a momentary catharsis for his thinking processes. There had to be a way out of this. But all he came up with was a vague hope that these intelligences would, in the final analysis, be too civilized to wreak the violence that had been threatened upon him. Based on his experience with civilization back on Earth, his hope wasn't all that great.

When his crustacean-like visitors began to show signs of returning consciousness, Logan decided it would be an appropriate time for his dinner meal. He asked his automated door for the equivalent of room service and, in less than a minute, the being in the fishbowl or its twin was outside.

"Did I understand you wished to partake of sustenance, bestower of prestige? We have many delicacies from worlds of other oxygen-breathers from which you may choose . . ."

Logan was tempted to demand crab

meat or, bearing in mind that his guide to the dining area could be the one who provided his room combination to those last visitors, at least some kind of sea food. But he kept quiet and followed his guide's recommendations. Even when the food came, he barely tasted it. The time for the contest to begin was nearing.

The voice of his guide, filtered through his ear plug, babbled on throughout the meal but Logan had been tuning it out until something caught his attention.

"... aware that you have been subjected to the crudities of outright bribery from so many of these other oafs today. It must be painful for a sentence of honor, such as yourself, so I know you will remember tonight that I have made no such unethical approaches on behalf of my own nominee—"

"So you *were* my welcoming committee. I wasn't sure," Logan said with a grin. Then something else occurred to him. "Your nominee? But aren't you an employee here?"

"That is true. But anyone can nominate a contestant, just by stating the nomination to one's automated room-door or to any terminal connected to the hotel computer. And I am confident that you will like the contestant from my home world."

Suddenly Logan was feeling a bit more confident himself.

It was hard to tell the contestants from the spectators when he was ushered to his place of honor in the hotel ballroom that evening. Each contingent was enclosed in a bubble-like area of its own environment, but finally someone thought to tell Logan that the representative he was to judge was to the forefront of each group. A few of the species possessing a talent for telepathy also reminded him silently of their various ul-

timatums, which did nothing to help his judge's objectivity.

The oxygen breathers and a few non-breathers surrounded his podium, as the transparent bubbles of the contestants revolved around him. He noticed Lynne Derry seated nearby, watching with academic interest to see just what he would do. After all, it no longer concerned her.

Even to his human senses, some of the entities drifting past struck him as truly beautiful in bizarre ways. A puff-ball being, soft and flowery; the glorified erector set, seemingly graced with perfect engineering balance; the rainbow-like creature, composed of the loveliest color combinations imaginable, and the multitudes of others—their alienness was not at all repulsive to him. Quite the opposite. All were beautiful in their individual ways.

His translator began to hum with a sound that meant it was becoming overloaded. The audience was becoming impatient for his decision. He hadn't realized so much time had passed as he gazed, as one hypnotized, at the passing spectacle. But his decision was already made. He might as well let the rest of them in on it.

"This is going to come as a disappointment to many of you," he said, in the hush that greeted his first words. "But I'm sure you will all realize that, in my position, your choice would have had to be the same." He turned away from the rotating rows of bubbles and pointed down. "I choose her."

Pandemonium erupted all around him, and around Lynne, where he was pointing. But Logan knew he would be safe from reprisals when it finally subsided, and the various entities offered their congratulations in their various ways to the officially-

proclaimed most beautiful creature in the galaxy. Only one being in the entire ballroom was angry at him now, and she didn't get a chance to express her feelings until the congratulations were finally over and she joined him at the podium.

She smiled and waved at the surrounding assemblage in response to the gamut of noises that Logan assumed were all cheers. But he noticed her gritting her teeth behind her smile as she flicked off her translator and whispered to him.

"You idiot! All that leverage, and you blew it. Why didn't you make some deal profitable to Earth by your choice?"

"I did," he whispered back. "Now they know we're as vain as they are, and perhaps a little smarter in some ways. They won't try to take advantage of us again so soon."

"Logan, don't you know that the winner makes a tour of all their worlds over the next year or so? I've got to get my information back to the

council—"

"You'll have a lot more information by then—and firsthand, not just stuff they were willing to trade for some temporary prestige. Think of all the intelligence you can bring back to the council a couple of years from now."

"Yeah, but I don't want to spend all that time being hustled around from one planet to another, getting stared at by everything with eyes and who knows what from some of the others."

"Why, Lynne," he said, "you ought to be honored, to be in a position to give so much help to the council—"

"Shut up!" she hissed through clenched teeth, still smiling as though her audience could tell the difference between a smile and a frown. "If I'd known they'd consider me a contestant by my coming here, I'd never have taken this assignment in a million years!"

Logan didn't dare tell her she *hadn't* been a contestant until a few hours ago, when he'd nominated her.

—PAUL DELLINGER

A Halo For Horace (cont. from page 88)

up on my set here. I still say, you're hiding something."

"Don't be a suspicious witch," he said over his shoulder, grinning in anticipation as he left.

WEIGAND DENNIS staggered back into Scotty's room, his face ashen.

Scotty MacDonald was still staring in fascination at the Tri-Di box in the corner of her office. She turned to him.

"Holy smokes," he muttered.

"What in the world happened there?"

"Holy smokes," he protested.

"What'll this ever do to the popularity poles and his public image?"

She said, "There was something funny in the transmission. It was like a comdery effect. Some kind of static, I suppose. Old Chucklehead sure looked like a clown."

He groaned and sunk into a chair and put his head in his hands. "The halo," he said. "The damned halo was on wrong."

"Halo?" Scotty said. "You mean that thing that appeared over his head looking like a ferris wheel all lit up, or a fireworks pinwheel, or whatever it looked like?"

"It was supposed to be horizontal," he moaned loudly. "*Horizonal*, not vertical."

—MACK REYNOLDS

fest to for a fiction which would consist of "charming romance intermingled with scientific fact and prophetic vision". Posterity, he claimed, would point to his fiction "as having blazed a new trail not only in literature and fiction but progress as well." (2)

Early science-fictional models of society were actual attempts to show what life *would* be like in the future. The crucial difference between the modelling of the early SF writers and the modelling of the euchronian writers was the removal of the word "if" from the message. Out with that "if" went the assumption of social action, but *not* the assumption of social change. SF replaced man as the motor of social change by the machine.

Gernsback was prepared to ignore the role which politics and social psychology might play in shaping the future in favour of technology. His own novel, *Ralph 124C41+* (1911) provides a perfect example of what Gernsback thought SF ought to be. It is a novel of social situation, using a participant observer as protagonist, but *all* the change which has taken place between 1911 and 2660 is the result of technological advance.

The early science fictional model of society was therefore a step away from the mainstream novel, but not wholly a step "backwards". It kept the emphasis on social situation but abandoned the emphasis on social action. This did not happen in the literary mainstream—rather the reverse. While SF refined its strategy, the mainstream writers who used the future of society as a theme tended to complicate theirs. Aldous Huxley's *Brave New World* (1932) was an attempt to combine the novel of social situation with the novel of social system. The author provides not only a participant observer (Bernard Marx),

but an "outsider" (the Savage) and a half-and-half character (Mustapha Mond) who has a kind of objectivity by being at the top of the social hierarchy—a controller rather than a participant. Much later, we find other novels attempting to combine all viewpoints into a single character—both *Limbo* by Bernard Wolfe (1953) and *Messiah* by Gore Vidal (1955) show the architect of a society rediscovering it, being thus possessed of both objectivity and subjectivity.

Science fiction remained a literature of social situation without social action until the forties. Then Campbell, in *Astounding*, began to insist on the relevance of human problems as well as mechanical ones. His chief disciple, Heinlein, plotted a future history which laid a heavy emphasis on social evolution rather than scientific advance. However, it must be noted that Heinlein was able to achieve this shift in emphasis *because the line of technological advance around which he built his social plan was already established as a pattern in the SF magazines*. In the wake of Gernsback the SF writers had drawn a map of the future in scientific terms. It was by no means accurate, and there was a great deal of confusion in it, but it was at least *familiar*. It provided the *Astounding* school with a basis upon which to build. This was exactly what the mainstream writers did not and could not find. *Brave New World* is based on one set of assumptions, deriving primarily from Haldane's *Daedalus* (the first in the famous series of futurological extrapolations "Today and Tomorrow" published by Kegan Paul, Trench & Trubner between 1923 and 1929, which ultimately ran to nearly a hundred volumes.) Other works by other writers (Shaw's *Back to*

Methuselah, Wells' *Shape of Things to Come* etc., etc.) had virtually no common ground. The strength of science-fiction was that its audience was already equipped with an appreciation of a full range of possibilities implicit in the present. They dealt not with one future based on one set of assumptions, but with a multiplicity of futures based on a whole host of sets of assumptions. The science fiction writer and reader could place a model of society in a vast context of alter-nativity which was simply not avail-able to the mainstream writer and crit-ic. While the mainstream visions of the future were static and self-contained the science-fictional visions were dynamic and collaborative.

Alongside Campbell's crusade to reintroduce social action into the SF novel there grew up other formulae. One of them was particularly preva-lent in *Startling Stories* novels, though by no means restricted to them. This formula features a con-temporary hero thrown into the fu-ture or another dimension with no possible means of returning. Thus, he begins life as an objective observer but rapidly metamorphoses into a par-ticipant observer (usually assisted by a romantic attachment to an other-worldly female). However, instead of adapting himself to the social situation into which he is introduced, he sets out to overthrow the entire system and make the other world more like his own. (SF heroes have never been lacking in ambition.) Malcolm Jame-son's *Tarnished Utopia* (1942) is an archetypal example of this kind of story. Hardly a year went by without *Startling Stories* publishing at least two novels of this type. Henry Kutt-ner wrote eight of them, and Edmond Hamilton at least five.

In the fifties, a new formula be-

came dominant in which the Campbellian type of fiction and the *Startling Stories* strategy were artfully fitted together to form the novel which we now remember primarily in association with *Galaxy*.

In the Advent collection of essays called *The Science Fiction Novel: Imag-ination and Social Criticism* (intro-duced by Basil Davenport) Robert Bloch presents a satirical summary of the SF writer's vision of the future as exemplified by these novels. His list of the principal ingredients of the for-mula is quite accurate, and I have borrowed it here, although the sec-tion is too long and elaborate for me to quote directly.

In the SF future of the fifties, says Bloch, we find a totalitarian state which may be ruled by almost any kind of clique. This is opposed by an underground governed within its ranks by a totalitarian order stricter than the one it opposes. Science has invariably provided means for the ruling elite to maintain their power, usually including forcible psychotherapeutic techniques. Economic incentive still rules su-preme and no matter how ingenious the choice of ruling elite the society is always a derivative of contemporary American culture. If space is con-quered then humans invariably col-onize other worlds and rule the na-tives in the fashion of the British Em-pire. The hero is always a rebel, but he has no ideas of his own. His aim is to "restore the 'normal' culture and value-standards of the mass-minds of the twentieth century". (In fact, it is so clearly understood that this is the aim that most fifties SF novels end with the revolution and do not bother with the aftermath.) (3)

It is obvious that this formula re-

tains much from the forties. But there are modifications. The hero is not a contemporary John Doe hurled by fate into a world he never made, but a participant observer—we are dealing with social situation, not with social system. *But*—and this is an important *but*—the pattern of social action with which the hero is involved is the same as it would be if he were that contemporary John Doe. The SF hero of the fifties is a rather odd composite—he is supposedly a product of his own social environment, but he acts as if he were a product of ours. This is so widespread in fifties SF that it must be regarded as an accepted convention of the field.

The paradoxical nature of this conventional character is one of the things which has led to such vehement criticism of SF by mainstream critics. This is SF's "failure of characterisation". If we look a little closer, however, I think we can find good sociological reasons for the existence of the convention.

What happened to SF in the fifties, largely courtesy of Gold's *Galaxy*, was exactly what happened in the forties courtesy of Campbell's *Astounding*. Writers took advantage of patterns which had emerged in the previous decade, with which the audience had become familiar, and employed those patterns for a different purpose, building upon them. Heinlein and his contemporaries took the context of alternative futures which would be defined by technological advance, and added the component of social action. Pohl and Kornbluth, and their contemporaries, took the context of alternative futures which would be defined both by technological advance and social action, and re-applied it to the components of the contemporary social environment.

The SF future of the fifties is not a totalitarian state because it has been conquered by aliens or anti-Americans or because a dictator has forced himself upon the people by the power of the machine. In the model society of the fifties the state is repressive because some component of our own contemporary social environment has expanded to be the state. As Bloch points out in his essay, virtually everybody had a crack of the whip. (Advertising, in *The Space Merchants*; gangsters in *The Syndic*; insurance companies in *Preferred Risk*; gamblers in *Solar Lottery*; hedonists in *The Joy Makers*; and even the Watashaw Sewing Circle in Katherine MacLean's "The Snowball Effect".)

Thus, it is not only the protagonist of the SF model society that is composite, but also the world in which he exists. One part of the social environment is blown up out of all proportion, but no *real* change of any kind is implicit in the model.

This kind of model evolved within SF, and it is unique to SF. All the works which build hypothetical models of society outside the SF establishment are didactic (in either a political or moral sense) in their basic intent. They are models of social situation constructed to exemplify the consequences of certain types of social action, to glorify or to vilify attitudes and methods. The SF novel of the fifties, however—despite the fact that its subject matter was invariably revolution in one form or another—is neither political nor moral in its basic substance. The state which it looks toward and the morality which it exemplifies are always representative of the *status quo*. No standard of comparison is implied—American democracy is taken as "given". (In Soviet SF, Soviet communism is

equally "given".)

What the science fiction model provides, however crudely, is an analytical model for the examination of factors in the contemporary social situation. The fifties SF novel may be satire, or it may be an *alternative* to satire as a technique of analysis of forces at work in society.

The expansion of one element of the social environment to the point where it "takes over the world" is a method of abstraction—a method of making such an element available for particular study. The formularistic account of social rebellion serves to bring viewpoint and environmental element into conflict—it is a kind of contest, like a football match, ritualised and equipped with "rules" for the sake of convenience. The extrapolation in this kind of SF novel is not temporal extrapolation at all, but social extrapolation—the extrapolation of the effects, influence and relativity of elements in the social environment with respect to contemporary man. The SF of *Galaxy* had little in common with Gernsback's SF, though it evolved from it. In the fifties, SF was no longer "about" the future—it was about the possibilities inherent in the contemporary social situation. (Most literary critics tend to overlook the fact that SF is "about" anything at all.)

The sixties took the pattern of development a little further. The function of the SF story remained the same, but the cumbersome and conventional formulae, by virtue of its own success, became redundant. It, too, reached the stage where it could be taken for granted by writer and reader.

Virtually all the social models of the fifties were novels or short novels, but in the sixties, while most of SF's major concerns were migrating from the

short story to the novel, the social model went the other way. The relationships between "abstracted elements" of the social situation and contemporary man were explored in much more compact and streamlined form. Ray Nelson's "Turn Off The Sky" (1963) is one of the most perfect examples of such streamlining.

The stripping of the formula initiated a trend towards the symbolization of factors in the social situation and a formalization of the nature of rebellion. We can see this most clearly in the works of Harlan Ellison. In "Repent, Harlequin, said the Ticktockman" the abstract is the regulation of life by the clock. In "Pretty Maggy Moneyeyes" it is the profit-motive as applicable to cash and sex; in "Eyes of Dust" it is social prejudice. In the first example, the system loses the contest, in the second it is the rebel who loses. In the third example, everybody loses.

The sixties has seen the emergence of great concern over the pollution threat and the population problem, both in society and in SF. (It is notable that though the SF establishment could hardly have been unaware of Malthus during its first thirty years, there are only a handful of stories which deal with pollution or population prior to the sixties. Until society became interested, SF apparently felt no need to extrapolate in this direction.) The literature which deals with this dual problem is of particular interest in showing how the techniques of social modelling in SF have embraced the short story and—to some extent—abandoned the novel.

John Brunner has written three major works on the coming crisis, all very long—*Stand on Zanzibar* (1969), *The Jagged Orbit* (1969) and *The*

Sheep Look Up (1973). In all of these novels Brunner has found the central narrative inadequate to his needs and has co-opted sequences of "tableaux"—often news clippings or advertisements or snatches of conversation—which build up a panoramic, multi-faceted image of the society as he is concerned with it. In all three of these books the series of excerpts from the social environment give a better view of social situation than the particular experience of the major character.

The bulk of the literature of the population/pollution theme is in the short story form, and it consists, in a sense, of "excerpts" from an overall pattern of possibility and anxiety which—*en masse*—adds up to a comprehensive analysis of current hopes, current fears, current dangers and current attitudes to this whole area of the spectrum of contemporary social environment. Brunner has tried to do on a small scale what SF as a social phenomenon does on a large scale. Real perspective on real problems can be obtained by the acquisition of a whole series of viewpoints on trends and possibilities. Ideas may be shaped by the summation and complementation of the images contained in a series of very different stories. (e.g. "Welcome to the Monkey House" by Kurt Vonnegut (1968) + "The People Trap" by Robert Sheckley (1968) + "We All Die Naked" by James Blish (1969) + "April Fool's Day Forever" by Kate Wilhelm (1970) + "All The Last Wars At Once" by George Alec Effinger (1971) + "When We Went To See The End Of The World" by Robert Silverberg (1972) + "To Walk With Thunder" by Dean McLaughlin (1973).)

There has been a rapid development in SF from a ritual exposition of

social action within a formularized "dummy system" to a sketch of a relationship within a social situation which is almost a "cartoon" or a "photograph". In literature as a whole there has certainly been a trend from studies of social anatomy to studies of social ecology, but this change has been slow and unsteady. Much of the mainstream literature which deals with the future of society is reactionary in nature. *Brave New World* is a hymn of hate against Haldane's ideas of where science might take society. It is essentially a *denial* of the future, a *rejection* of change. Forty years later, in Ira Levin's *This Perfect Day* we find exactly the same attitude—we have different villains now (Christ, Marx, Wood and Wei) but little else has changed. It is simply a reaction against trends without any awareness at all of the alternatives involved. Science fiction began by *assuming* change, by plotting possibilities, by drawing maps of temporal territory regardless of the fact that they could not be verified. Because of this, science fiction retains the assumption of *alternativity*. Its images are dynamic, including the present and extending from it in many directions.

A literary critic may take a science fiction story, and look at it as a single, isolated text, and he may say with absolute truth that it is not well written, that it is not aesthetically rounded, and that its internal logic escapes him. But if we can understand that there are other points of view than that of the literary critic, we can accept all that he says and still reject his conclusion that SF is worthless. We should not look at SF stories as independent entities—we should look at SF itself as an entity—a medium of communication. When SF is looked at as an assemblage of ideas, rather than

an accumulation of objects, we can see it as a way of looking into the future from the viewpoint of the present. That, when all said and done, is the way that time is taking us. One might even go further than that and say that SF is the *only* means available to us by which we can provide ourselves with a realistic and meaningful perspective on the future.

Science fiction today is a literature of adjustment rather than a literature of invention. It offers us a method of searching our environment for ways to live in it. It is undoubtedly an imperfect tool for use in the science of social ecology, but it is nonetheless *useful*. Social design in science fiction may offer very few clues to the macrosocial organisation of the near or

distant future, but we may have a great deal to learn from what it tells us about microsocial relationships in the contemporary—and forward-moving—environment.

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- (2) Hugo Gernsback, editorial in *AMAZING STORIES* April 1926, reprinted April 1966 p. 188-189.
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—BRIAN M. STABLEFORD

EDITORIAL

LOST, STRAYED, OR. . . Somehow, somewhere between Virginia and New York, a timewarp or perhaps the Postal Service has swallowed an editorial originally destined for this very spot, and taken with it this issue's letters as well.

As it happens I am on the eve of my departure to Phoenix, Arizona, the site of the 1978 World Science Fiction Convention, which goes under the unlikely name, this year, of Iguanacon. Dan Steffan and I are driving out in my Volkswagon, and looking forward to an interesting trip. Somewhere in the middle of the journey we shall don our alter-egos and become Doctors Progresso and Bonzo and celebrate the vast diversity that is the American countryside.

That said, it is useless for me to attempt to reconstruct, now, my former editorial—which you may be sure was chock full of pith and vim—and too soon for me to have anything interesting, or even uninteresting, to report on the convention. Awards will be

handed out, as usual, and, as usual, some will strike us as well-picked and others as ghastly mistakes. I'm sure an elevator will fail at some point in one of the two hotels; perhaps four thousand people are expected to be there. Phoenix in August should provoke a few anecdotes; I have several left over from 1966, the last time I passed through that city in the summer. And then there's Harlan Ellison, the Guest of Honor who has sworn the oath of ERA not to partake of any of Phoenix's commercial offerings. He has said he will pitch a tent. Informed money is on a Winnebago instead, but the cynics are betting on the hotel airconditioning's seductive power. No doubt whatever happens will be fascinating; Harlan is never dull. But, as I said, it's too soon to write of these things—they lie in the very near future, and this editorial is not, itself, science fiction. . .

In fact, this editorial is not, itself, anything but an excuse and an apology. Next issue. . . —TED WHITE

**RICH
BROWN**

**the
Clubhouse**



FANTHOLOGY 76, \$3, mimeo & multilith, 99pp, Victoria Vayne, PO Box 156 - Stn D, Toronto, Ontario, M6P 3J8 Canada.

SCIENCE FICTION STUDIES 11, \$3, multilith, 104 pp (half-size), SFS Subscriptions, English Dept, Indiana State University, Terre Haute, IN 47809.

SOME OF MY deathless prose has died.

I wrote an installment of this column which made it into type, but not into print; as I mentioned at the end of the last installment that made it into print, occasionally this column can be bumped in favor of running a piece of fiction, and that in fact was what happened.

I mention this not by way of complaint but in explanation for the lengthy delay. Somehow the bumped column got misplaced, did not appear in subsequent issues, and along with the rest of you I kept wondering when the next installment would appear. The publisher kept wondering when I would submit the next installment.

In a way, however, this may have all been for the best: That installment reviewed only one fanzine, and was something of a roasting. I thought the

fanzine in question, particularly the attitude expressed in the editorial, a pretty good example of how *not* to go about publishing a fanzine. I said so and I said why.

Fans who already know something of what fanzines and fandom are all about might have found that column more interesting than one comprised of solid- (or, for that matter, soft-) praise reviews; to the new or would-be fanzine readers, however, it would have been much ado about nothing, an overly belabored point about one more fanzine to avoid.

All of which brings me back to the problem that has faced *Clubhouse* columnists since the Beginning of Time—namely, the determination of who reads the column and why, and who the column should be written for.

Now, I assume that fanzine editors glance over the column to see if their zines have been reviewed; some of them may actually read *The Clubhouse* even if their zines are *not* reviewed. Likewise, I assume that people who write for the fanzines reviewed make an "egoboo" check to see if their contributions have been mentioned. I further assume that people acquainted with fanzines and fandom may read the column just to see if they agree with what I'm saying.

But however much I may enjoy having these people as readers, they are not the primary people I am writing for here. There are some people—perhaps you are one—who do not know what fanzines or fandom are all about but who read this column out of curiosity and a desire to find out.

I happen to believe that this column "belongs" to these people in a way which is much more fundamental and basic than it could ever "belong" to me or anyone else who has ever written it. That is why, for example, I have attempted to recommend good serious fanzines, even though serious fanzines are not my favorite kind of fanzine. Just as, I suppose, given a column intended to introduce people to music, I would strive to find good examples of jazz and rock to recommend, though my own tastes run to folk and classical.

It is a distinct pleasure, then, to have a fanzine for review that I can recommend wholeheartedly and without qualification to a great number of different types of readers—to fanzine publishers and neofans, to the serious and the humorous minded, to people who have been reading fanzines for 50 years, and to people who have never read a fanzine before.

Victoria Vayne's *Fanthology 76* is pretty much what its title implies it might be—an anthology of the best published fannish writings of 1976. The layout and mimeography are impeccable (although I could have done with a few pages without the black-line borders, i.e., with a little "air"), with heavy front and back covers. The choice of pieces (complete with all the art they originally appeared with) is excellent and broad-based, with a heavy emphasis on entertainment value, and complete data about the fanzines they are reprinted from are

given in the credit lines (with the exception of prices), so that the enterprising new or would-be fan can read this collection, decide which type of fanzine writing they prefer, and obtain the fanzines that publish their type of material.

For serious science fictional interest, there is Mark M. Heller's excellent and entertaining, "History and Biology in Poul Anderson's *Fire Time*," which explores and examines in a long, detailed, scientific fashion, the two-phase biosphere in the Anderson novel. It meets the criteria of the other articles in *Fanthology 76*—namely, that it is entertaining and thought-provoking reading.

There are other serious, or semi-serious, pieces, but not serious about things science fictional. There is, for example, Harry Warner's introduction, "1976", about the year in fandom, written exclusively for the fanthology; and also his "All My Railroad Yesterday," one of the publication's finest pieces of personal journalism in which he details his experience working for the railroad before becoming a professional journalist. Two other excellently written and non-esoteric pieces of personal journalism are Mae Strelkov's "Brother, Are You Saved?" and Don D'Amassa's "Myth: On Courage."

The fact that the emphasis of this publication is on good writing and interest, however, leads a good number of the selections to be in the category of fan humor, although some also fall under the category of personal journalism. A few examples:

... many leading space technologists have acknowledged the stimulous they get from science fiction. Only the other day I read an article by a big man in the communica-

tions satellite business who said he had lost millions of pounds because in 1947 he thought of, but failed to patent, Arthur C. Clarke. People even come to me and ask technical questions. Questions like: "If you put a hole in the middle of a Gemini spacecraft would that make it Apollo?" Or, "Up there, in the emptiness of space, what would Isaac Asimov push against?" (Bob Shaw, "The Return of the Backyard Space-ship".)

He threw his arms wide and started toward me again. "Mari Beth! It's good to see you again, old girl! Did I tell you about my trip to Australia? Went to Ballarat. Rode the blinds all the way from San Francisco. Hell of a town! Real riproarer! They're all planning for gold and daffodils there now. I told Rusty that damned Fault was going to slip again, but he went anyway. Froze solid. Couldn't get him through the door back onto the train. Sold him to some woman to use as a hitching post for her horse." (Lee Hoffman, "A Travelling Giant Calls".)

... In the central area blocks of black clad automatons begin marching to the steady thump of muffled base drums. The stream is endless. Your frame of reference is dwarfed. You have never seen that many people in one place at one time. Except maybe the Lexington Avenue Line at 5:00. (Lou Stathis, "Riefenstal".)

And what may be my favorite line in the entire publication:

As usual fandom moved in unison with smooth precision to attain its goal. (Tom Perry, "Fandom Ink".)

There are other excellent humorous pieces in *Fanthology* 76, to be sure:

"Conversational Fannish" by Aljo Svoboda would be of interest to the new fan but perhaps would not be as funny as it is to someone who knows a little more about fandom; D.H. Carter's "On the Physics of Square Orbits," on the other hand, can be read and enjoyed equally by anyone, being about the science and art of driving on by-passes and cloverleaves; Grant Canfield's "Report From Point 30" I extolled in an earlier installment of this column when it appeared in *Mota*, and I've found no reason to change my opinion of it; Dave Emerson's "Crudnet" is an amusing transposition of *Dragnet* into a fannish context; and Bob Tucker's "The Last Survey" proves pretty much beyond the shadow of any possible doubt that if conventions have been serving rubber chicken at their banquets since The Beginning of Time.

The issue also lists, as filler, the winners of the Hugo, Ditmar, Nebula, FAAN, Nova and Roger Awards (some of these for both 1976 and 1977) and winners of the 1976 and 1977 TAFF and DUFF races.

Fanthology 76 is a zine that new fans should have so as to discover what they like and which the old-time and active fans should have so that they won't have to go digging through their stacks of fanzines, in years to come, to get to the best that 1976 had to offer in terms of fan writing. This might not contain all of fandom's best for the year—but it's as close as anyone is likely to come.

DUE OUT AS I write this is *Warhoon* 28—the Willis issue.

For those of you who may not know, Walter A. Willis is a fan from Northern Ireland, and one of fandom's finest writers (in this humble reviewer's opinion, shared by many

others in fandom, *the* finest fan writer ever). Walter Willis has been writing brilliantly for fanzines for close to 30 years, and published two of the best fanzines in fandom's long and often brilliant history (*Slant* and *Hyphen*).

I will review the Willis issue of *Warhoon*—assuming it arrives here as per schedule—in the next installment of this column. But there are those who already know of WAW's writing prowess who will wish, before I have a chance to review it, to have for their own this 600-page volume which will contain all 44 installments of "The Harp That Once Or Twice" (the legendary column Willis wrote for *Quandry*, *Oops!*, *Warhoon* and *Quark* from 1951 to 1969); "The Harp Stateside" (the *ne plus ultra* of convention reports; WAW was imported to the Chicago convention by U.S. fandom in 1952 and this was his report on that trip, which was instrumental in the beginning of a fannish institution, the Trans Atlantic Fan Fund, or TAFF for short); "Willis Discovers America" (the hilarious, fictional version of Willis' 1952 trip, written before it happened); "... Twice Upon A Time" (the never-before-assembled account of his 1962 trip to the U.S., on the tenth anniversary of the first one, once again for the pleasure of his company); "The Enchanted Duplicator" (the allegory, co-authored with fellow Irish fan Bob Shaw, of Jophan's Quest and what he learned on his way to the Tower of Trufandom, which was serialized here in this column in 1972); "The Harp in England I & II" (early convention reports that completely revised the form and estab-

lished Willis' reputation as a writer and observer); "Willis in *Slant*" (the very early Willis); "The *Slant* Story" (or, How To Go Mad One Letter Press At A Time), and 100 pages of memoirs.

This, according to a flyer from the publisher, is just the material by Willis; there will also be Harry Warner's "A Wealth of Fable" (not the fan-history volume, but his biography of Willis which was his first usage of the title), Peter Graham's "Inside The Harp Stateside," Tom Perry's "The Night I Went To Barcelona By Way of Donaghades", an eight-page bibliography of Willis' writings (which, the editor/publisher notes, includes an amazing amount which did not find its way into this volume) and some 70 pages of color art by Lee Hoffman, Arthur Thompson, Bob Shaw, James White, ShelVv Vick, and Richard Bergeron.

Warhoon 28 will have hardcover binding, gold stamping, and will be available (while the supply lasts) for \$20 from Richard Bergeron, 11 E 68th St, New York, NY 10021.

Considering the respect most fans who've been in fandom for any length of time have for Willis' writing, I thought it best to mention it now; \$20 might be a bit steep for most fan publications, but I have serious doubts that the supply of this will last for very long.

LAST BUT NOT least, let me once again remind fan editors that they should continue to send fanzines for review to: Rich Brown, 2916 Linden Lane, Falls Church, Va 22042.

—RICH BROWN

...OR SO YOU SAY



Letters intended for publication should be typed, double-spaced, on one side of each sheet, and addressed to Or So You Say, Box 409, Falls Church, Va., 22046.

Dear Ted,

It's almost possible to see why AMAZING is on the way out: Your policy of only accepting stories from S.F.W.A. members, unless accompanied by a reading fee is one thing, but to bring out an issue (the first I've managed to obtain in Australia for nearly 18 months) containing a short novel half-written by yourself (I'm not disputing the fact that you're a member of S.F.W.A., but who reads your stuff for acceptance?), *plus a first story* by the wife of one of your regular writers (more or less)! (Did that one get taken from the slush pile with a reading fee?), both of which in my mind wouldn't have been accepted by some of your rival(?) publications.

I'm afraid your obvious leaning to Fantasy comes through loud and clear in "A World of One's Own." It reads like one of those Sword & Sorcery tales: lots of 'mystery', dozens of things happening that are never resolved. The bloody thing just peters out, and feels like a chapter of a novel that will never see print!

"Time To Kill" is so cliché it hurts!

In fact, to save time and postage, *everything* in the October 1977 issue of AMAZING, except for "Shadow of a Snowstorm," was below the general

standard of the other magazines, including those that have (lately) taken to putting lots of new names into their pages.

While the rest of the sf scene has decided to look to the new, even at the expense of searching through the crap in the slushpiles, AMAZING is looking over its shoulder at the 'established' forms of experimenting/acceptable sf. *That's* why it'll die its inevitable death, unless you take heed of (surely) the mail that flows in.

PETER KNOX
P.O. Box 225
Randwick 2031
N.S.W.
Australia

Which mail was that? Letters (like yours) panning the stories we've published, or those letters from people who like the same stories? (In fact, the mail represents a tiny fraction of our total readership, and isn't too reliable as a guide: people who have a gripe are more likely to write than those who are satisfied. . .) Despite your impression of the matter, I am not myself a member of the SFWA—haven't been for almost six years, now—and the reading fee (25¢) applies to submissions by previously unpublished authors and is not per se a factor in the acceptance of a story. Perhaps now that you've read "A Forbidden World"—the sequel to "A World of One's Own"—you'll be happier with the resolution of the first story.—TW

Dear Ted:

My two cents worth on the Gernsback controversy: the bankruptcy was not the result of paying his writers. My respect for the "Father of Science Fiction" dipped after learning that Lovecraft had great trouble in collecting a pittance for "The Colour Out of Space". Afterwards, HPL called him Hugo the Rat and claimed that Clark Ashton Smith had to sue for payment while Frank B. Long just took the loss. Even Burroughs had to dun Gernsback for the payment due from "The Master Mind of Mars." If they had problems collecting, I can imagine the treatment unknown writers received.

The old boy had such deep pockets and short arms that I have trouble understanding how anyone could outfox him into bankruptcy.

RICHARD A. MOORE
2148 Fairhaven Circle
Atlanta, Georgia 30305

Dear Mr. White,

A few days ago I was reading Charles Sheffield's "Sight of Proteus" in the May AMAZING. When the protagonists reached Old City, I yelped with delight, "On to Alpha Ralpa Boulevard!"

The resident spiertier, in the shape of an alley cat, commented telepathically, "So now you're going to compare Sheffield with Cordwainer Smith. Last month you read 'Power Failure', and you were saying that his sensitivity to the frustrations and confusion of his characters reminded you of LeGuin."

"But why shouldn't he be like both and still like neither", I replied. "After all, he's himself, not an imitation of any one person, no matter how much he's influenced by each one, or under the same influences. The bio-feedback form-changers aren't Underpeople any more than they are identical with the surgical monstrosities of

Babel-7, nor with any other previous invention. In fact, Sheffield may be the parent of a whole new variety. Even if this is an original contribution to the field, that doesn't keep me from being reminded of the situation just before Paul and Virginia first meet C'mell. Even the unending ending is in character, since it allows the story to fit into a whole possible future history. And the plight of the children undergoing "humanity" tests is somewhat like that of the youth of Norstrilla. In both cases, to be judged human enough to live, you have to be rather unhuman by twentieth-century standards."

The spiertier stopped searching for cookie crumbs and scratched its ear as it answered. "It sounds as if you would like to see Sheffield put out a sequel."

"Yes, that would probably be interesting," I said, "but if he has other ideas with no relation at all to his published work, I'm looking forward to those too. I only wish him better luck with his illustrators. Steve Fabian didn't really illustrate the story, although he was trying to get the mood. I assume that the shape-changer on the cover represented the individual with an exoskeleton who was barely mentioned, but who or what could the female face indicate? D'joan and Helen America and Dolores Oh aren't in this one. It's a common problem, though. LeGuin explained at length how one of her characters played what is sometimes called an Irish harp or minstrel harp, and the illustrator went ahead and drew a huge orchestra harp. If you were old enough to remember the original pictures for Smith's work, you'd understand my disappointment."

"Are there any donuts left?" thought the spiertier at me, but I pretended to be non-telepathic.

PATRICIA S. PATTERSON
POB #525
Cary, N.C. 27511

Dear Sir:

The May 1978 issue of AMAZING is pretty good. Personally, I favor more short stories rather than novelettes. But the stories were all pretty good.

"Sight of Proteus" by Charles Sheffield impressed me. I don't think it will win a Hugo or a Nebula, but it was certainly better than "Power Failure" in the April 1978 FANTASTIC. He's shaping up nicely.

Mack Reynolds's story was good, nothing to brag about, but it does show his talents. But I wouldn't talk too much about his being *If's* most popular author. Remember what happened to *If*?

"Saint Francis Night" was also interesting, but also nothing to brag about. It was okay.

"In the Arcade" was bizarre, as Lisa Tuttle's stories usually are. But it was entertaining.

Oddly enough, or perhaps not so oddly, the first thing I thought of when I saw the name Steve Miller was the musical fellow. But the second thing I thought of was that it couldn't possibly be you know who. Anyway it was a great story by a new author.

Vol Haldeman's story was not as good as the one in the March 1977 issue. But it was another bizarre-but-entertaining story. Apparently this story was set in the aftermath of the ruin of some civilization or other.

It is too bad that Ray Palmer has died. Personally, I don't like the kind of fiction that he published. But he was one of the very important editors of the science fiction field. Considering that his involvement in science fiction ended some time ago, his death will have little effect on science fiction, save for a brief period of mourning.

I found this second article by Thom Perry interesting, informative, irreplicable, and other praiseworthy words. But I'm not too sure of the alternate universe scenario. After all, *Weird Tales* was being published

then, and doing reasonably well. Clayton Magazines might have published *Astounding* anyway. When they collapsed a few years later, their magazines were snapped up eagerly. But Gernsback's new SF magazines would have been in hot water legally, no doubt. And science fiction probably would have gone on in much the same way.

On a broader scale in the alternate universe: If the case had been handled normally, there would not be a procedure for handling bankrupt companies which had been laid down by that particular case. The Depression would have hit harder than it did (if such was possible). The economy might never have recovered.

In conclusion, I would like to ask, whatever happened to scientfiction? You've stopped plugging it.

And how come Stephen Fabian has monopolized the covers of *Amazing* and *Fantastic* for the past year? He's good but he's not the only artist, surely.

ROBERT NOWALL
6 Martin Road

Poughkeepsie, NY 12601

The ultimate success of "scientfiction," "stf," etc., lies in the degree to which it becomes common usage. The term had all but died from the language when I decided to resurrect it a few years ago, but although it has gained a further lease on life as a result of my "plugging" it, it certainly hasn't nudged "sci-fi" from the mass-media and public consciousness. Whether it ever does will be up to you—all of you. —TW

Dear Mr. White:

Though I have been an avid reader since my grade school days and am now in my mid-twenties, I have only recently discovered science fiction and science fiction/fantasy magazines. I am enjoying the wide perspective of this genre and also the possibilities inherent in the short forms of literature in contrast to the predominant

continues on page 111

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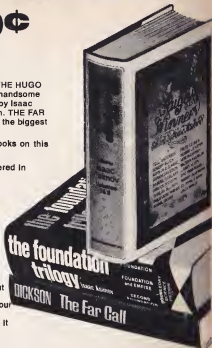
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